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MANAGEMENT SITUATION ANALYSIS
FOR THE
WELLS RESOURCE AREA

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Prepared by	
Department of the Interior	
Bureau of Land Management	
Elko District	
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Prepared by	
Department of the Interior	
Bureau of Land Management	
Elko District	

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CHAPTER 1

INTRODUCTION



INTRODUCTION

Background

The Management Situation Analysis (MSA) is designed to provide the information base which will be used to prepare alternatives for the EIS portion of the Resource Management Plan (RMP). The MSA is constrained by planning criteria which were finalized after several months of public comment opportunity and BLM study.

The criteria, or "guidelines", deal with 14 significant issues identified for consideration in the Wells RMP. They are based on relevant laws, regulations, and executive orders; national and state BLM director's guidance; public participation and interagency coordination; analyses of available data; and professional judgement. Limiting the scope of the MSA in this manner was done to help ensure the RMP is tailored to only those issues previously identified.

The Wells Resource Area (RA) consists of two planning units: the Contact Planning Unit in the north and the Currie Planning Unit in the south. The geographic area, considered a portion of "rural Nevada", consists of approximately 5,479,000 acres which make up the eastern half of Elko County.

Over 4 million of these acres (76 percent) are public lands. They include an approximately 50-mile-wide band of checkerboard ownership which borders the railroad right-of-way in an east-west direction and roughly bisects the resource area.

The resource area, bordered on the north by Idaho and on the east by Utah, also adjoins the Humboldt National Forest and Ruby Lake National Wildlife Refuge. Several Indian colonies and reservations fall within or near the resource area.

Using This Document

The MSA consists of two parts--this document plus a series of 64 overlays. The overlays depict various resources, e.g., lands available for community expansion and critical wildlife habitat areas, geographically and will be a primary tool for identifying resource conflict areas and developing alternatives.

Thus, the document portion of the MSA alone is incomplete--it does not attempt to explain at length what the overlays can show at a glance. However, it does present valuable background information and lists prioritized management opportunities used in developing alternatives.

The MSA document does stand on its own. However, anyone desiring a complete understanding of the alternatives development process must use it in conjunction with the overlays.

CHAPTER 2

SOCIAL AND ECONOMIC OVERVIEW



SOCIAL AND ECONOMIC OVERVIEW OF THE WELLS RESOURCE AREA

The Wells Resource Area (RA) covers the eastern half of Elko County. It encompasses 5,479,000 acres (34,242 square miles) characterized by rugged mountains and broad valleys. Most of the planning area is above 5,000 feet in elevation.

The communities of Wells, Jackpot, and Montello lie in the planning area. The town of Wendover is split by the Utah-Nevada state line into East and West Wendover.

Population

The Wells RA is sparsely populated. The entire area is considered rural, although 68 percent of its population is located in three "urban" centers. The 1970 population of the planning area was 3,327; the 1975 population was 3,850; and the 1980 population was approximately 4,300.

Wells is the largest community in the planning area, with a 1981 population of 1,218. It is followed by Jackpot and West Wendover, with populations of 808 and 395, respectively. Since 1973, a small community of 250 persons has grown up around the Victoria copper mine. The population at this mine has dropped to under 50 persons since February 1981 with the closing of most of the mining operations.

Population projections for the planning area are shown in table 2-1. These projections are based on the community plans of Wendover, Jackpot, and Wells and on the Sierra Pacific Power Plant population projections near Wells. Growth for the city of Wells will be heavily dependent on the proposed Sierra Pacific Power Plant which is to be built 30 miles to the northwest. Construction of the plant is scheduled to start in 1985.

An extremely important determinant of population in the resource area is the new number of tourist-related jobs that can be attracted to the area. Most of the population estimates are based on the assumption that American mobility will continue at present or increased levels. Any gasoline curtailment or significant price increase could have major economic significance in the resource area and would be reflected in decreased population projections. (Population projections for the individual communities are discussed in the lands section under "Economic Analysis").

Employment and Income

Employment and income in the planning area are concentrated in the basic sectors of tourism, agriculture, and mining, with tourism playing the largest role. Secondary businesses (e.g., banking, retail stores, etc.) are not well

THE ECONOMIC HISTORY OF THE WEST INDIES

The first of the three periods of the economic history of the West Indies is the period of the early years of settlement, from 1492 to 1600. This period is characterized by the discovery of the New World, the establishment of the first colonies, and the beginning of the process of economic development.

The second period of the economic history of the West Indies is the period of the middle years, from 1600 to 1800. This period is characterized by the growth of the sugar industry, the development of the plantation system, and the increasing dependence of the colonies on the mother country.

THE EARLY YEARS

The early years of the economic history of the West Indies are characterized by the discovery of the New World, the establishment of the first colonies, and the beginning of the process of economic development. This period is marked by the arrival of Christopher Columbus in 1492, the establishment of the first Spanish colonies, and the beginning of the process of economic development.

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THE MIDDLE YEARS

The middle years of the economic history of the West Indies are characterized by the growth of the sugar industry, the development of the plantation system, and the increasing dependence of the colonies on the mother country. This period is marked by the increasing dependence of the colonies on the mother country.

Table 2-1
WELLS RESOURCE AREA POPULATION PROJECTIONS

		1970	1975	1980	1985	1990
Jackpot ¹	High				1,900	2,400
	Medium	383	750	800	1,500	1,700
	Low				1,100	1,200
Wendover ² (East and West)	High				4,500	5,200
	Medium	878	1,000	1,500	2,400	2,800
	Low				1,400	1,600
Wells ³	High				6,200	8,200
	Medium	1,081	1,100	1,200	4,000	6,000
	Low				1,800	2,000
Remaining Area ⁴	High				1,300	1,400
	Medium	985	1,200	1,000	1,000	1,000
	Low				900	900
Total Wells RA	High				13,900	17,200
	Medium	3,327	3,850	4,500	8,900	11,500
	Low				5,200	5,700

¹Jackpot Community Plan

²West Wendover Development Plan and Toole County Master Plan

³Wells Nevada Comprehensive Plan

⁴BLM Estimates

developed in the resource area, with residents traveling to Elko, Twin Falls, and Salt Lake City for a significant part of their needs. The population of the resource area is too small to support a full range of secondary industries. As population expands, more secondary industries will come into the area.

Tables 2-2 and 2-3 show employment by type and source and personal income by major source for Elko County.

Services

Services are both the primary employment and income generating sectors for Elko County, employing 29 percent of the total work force and providing 28 percent of the total personal income. This sector includes hotels and motels, auto repair, shops, business services, amusements, eating and drinking places, health services, etc. Employment in services is concentrated in the basic industry of tourism.

Tourist-related service jobs are found in the casino centers of Wendover, Jackpot, and Wells. Growth in the tourist-related service industries has primarily occurred in Wendover and Jackpot. Receipts from amusement and recreation services account for about 40 percent of the revenue from services in the county. Gross taxable gaming revenues for Elko County were \$32,814,000 for 1979.

Agriculture

Agriculture accounts for 9 percent of the personal income and employment in Elko County. However, agriculture is more important in the Wells RA than in the overall county, with approximately twice as many persons employed as farmers, farm managers, farm laborers, and farm foremen compared to Elko County as a whole. Agriculture is dominated by the livestock industry in the Wells RA.

Because of the short growing season, few crops can be raised. Only 10 percent of the hay crop is sold, with the remainder being utilized by the local operators. There are no major sources of farm machinery, feed, or marketing services in the resource area.

Public lands are extremely important to the livestock industry. Without the public lands, the livestock sector could not carry on year-round operations; thus, sector and overall personal income would decrease. The Bureau contributes only 27 percent of the forage in the area. However, 80 percent of the cattle are on public land during the year. A large portion, over 50 percent, of the AUMs (animal unit months) that BLM licenses are controlled by absentee owners who maintain their residence out-of-state.

Mining

Mining is the most erratic sector in the county. After the rich Comstock Lode at Virginia City, Nevada, was discovered in 1859, prospectors began to spread

TABLE 2-2

ELKO	NEVADA	EMPLOYMENT BY TYPE AND BROAD INDUSTRIAL SOURCES 1974-79 (FULL AND PART-TIME)					
ITEM	1974 1/	1975 2/	1976 2/	1977 2/	1978 2/	1979 2/	
EMPLOYMENT BY PLACE OF WORK							
TOTAL EMPLOYMENT 3/	7,683	7,531	7,796	8,275	8,633	8,913	
NUMBER OF PROPRIETORS	856	791	800	805	795	811	
FARM PROPRIETORS	242	189	193	189	174	173	
NON-FARM PROPRIETORS	614	602	607	616	621	638	
TOTAL WAGE AND SALARY EMPLOYMENT	6,827	6,740	6,996	7,470	7,838	8,102	
FARM	513	513	608	582	626	582	
NON-FARM	6,314	6,227	6,388	6,888	7,212	7,520	
PRIVATE	4,738	4,629	4,788	5,164	5,410	5,753	
AG. SERV., FOR., FISH., AND OTHER 4/	20	25	28	30	27	29	
MINING	173	164	220	240	196	286	
CONSTRUCTION	346	287	292	335	364	386	
MANUFACTURING	53	48	52	72	142	174	
NON-DURABLE GOODS	30	31	34	39	54	57	
DURABLE GOODS	23	17	18	33	88	117	
TRANSPORTATION AND PUBLIC UTILITIES	590	573	545	575	587	626	
WHOLESALE TRADE	112	156	159	143	134	149	
RETAIL TRADE	1,312	1,325	1,336	1,293	1,310	1,331	
FINANCE, INSURANCE, AND REAL ESTATE	232	196	192	217	212	227	
SERVICES	1,900	1,855	1,964	2,259	2,438	2,545	
GOVERNMENT AND GOVERNMENT ENTERPRISES	1,576	1,598	1,600	1,724	1,802	1,767	
FEDERAL, CIVILIAN	268	228	210	264	280	282	
FEDERAL, MILITARY	113	105	99	79	75	68	
STATE AND LOCAL	1,195	1,265	1,291	1,381	1,447	1,417	

REGIONAL ECONOMIC INFORMATION SYSTEM
BUREAU OF ECONOMIC ANALYSIS

TABLE 2-3

ELKO COUNTY

NEVADA

PERSONAL INCOME BY MAJOR SOURCES 1974 -79 (THOUSANDS OF DOLLARS)

ITEM	1974	1975	1976	1977	1978	1979
TOTAL LABOR AND PROPRIETORS INCOME BY PLACE OF WORK						
BY TYPE						
WAGE AND SALARY DISBURSEMENTS	55,235	58,740	65,056.	74,132	83,455	94,863
OTHER LABOR INCOME	2,437	2,916	3,664	4,686	5,099	6,147
PROPRIETORS INCOME	7,712	5,183	5,644	5,479	9,814	14,203
FARM	2,001	42	-1,062	-3,251	-461	2,774
NON-FARM	5,711	5,141	6,706	8,730	10,275	11,429
BY INDUSTRY						
FARM	6,157	4,403	3,687	2,248	5,748	9,487
NON-FARM	59,227	62,436	70,677	82,049	92,620	105,726
PRIVATE	46,018	47,291	54,330	63,756	71,774	83,448
AG. SERV., FOR., FISH, AND OTHER	254	418	489	560	642	705
MINING	1,879	2,025	3,065	4,109	3,166	5,420
CONSTRUCTION	5,191	4,600	5,245	6,031	7,826	7,346
MANUFACTURING	570	560	632	911	1,710	2,167
NON-DURABLE GOODS	301	305	357	432	617	703
DURABLE GOODS	269	255	275	479	1,093	1,464
TRANSPORTATION	7,762	8,016	8,914	10,228	11,374	14,228
WHOLESALE TRADE	2,095	2,257	2,533	2,550	2,818	3,345
RETAIL TRADE	10,221	10,797	11,773	11,198	12,214	14,037
FINANCE, INSURANCE, AND REAL ESTATE	2,320	1,908	2,549	4,198	3,802	4,337
SERVICES	15,726	16,710	19,130	23,970	28,222	31,863
GOVERNMENT	13,209	15,145	16,347	18,293	20,846	22,278
FEDERAL, CIVILIAN	2,727	3,152	3,252	4,037	4,630	5,004
FEDERAL, MILITARY	205	211	214	201	211	174
STATE AND LOCAL	10,277	11,782	12,881	14,055	16,005	17,100
DERIVATION OF PERSONAL INCOME BY PLACE OF RESIDENCE						
TOTAL LABOR AND PROPRIETORS INCOME BY PLACE OF WORK	65,384	66,839	74,364	84,297	98,368	115,213
LESS: PERSONAL CONTRIBUTIONS FOR SOCIAL						
INSURANCE BY PLACE OF WORK	3,236	3,344	3,605	4,017	4,355	5,037

REGIONAL ECONOMICS INFORMATION SYSTEM
BUREAU OF ECONOMIC ANALYSIS

TABLE 2-3 (CONT'D)

ELKO COUNTY

NEVADA

PERSONAL INCOME BY MAJOR SOURCES 1974-79 (THOUSANDS OF DOLLARS)

ITEM	1974	1975	1976	1977	1978	1979
NET LABOR AND PROPRIETORS INCOME BY PLACE OF WORK	62,148	63,495	70,759	80,280	94,013	110,176
PLUS: RESIDENCE ADJUSTMENT	1,544	1,900	1,907	2,052	2,964	4,007
NET LABOR AND PROPRIETORS INCOME BY PLACE OF RESIDENCE	63,692	65,395	72,666	82,332	96,977	114,183
PLUS: DIVIDENDS, INTEREST, AND RENT	13,335	14,112	15,140	16,920	20,499	23,987
PLUS: TRANSFER PAYMENTS	9,182	11,670	13,063	14,399	16,709	18,881
PERSONAL INCOME BY PLACE OF RESIDENCE	86,209	91,177	100,869	113,651	134,185	157,051
PER CAPITIA PERSONAL INCOME (DOLLARS)	5,586	5,988	6,542	7,520	8,779	10,198
TOTAL POPULATION (THOUSANDS)	15.4	15.2	15.4	15.1	15.3	15.4

REGIONAL ECONOMICS INFORMATION SYSTEM
BUREAU OF ECONOMIC ANALYSIS

eastward in their search for minerals. As prospectors spread into Nevada, other rich gold-silver deposits were soon discovered. From 1867 to 1873, mining activity was at its peak in the resource area.

In these early days of mining, gold and silver were the principal metals sought. After a time, improved metallurgical practices, such as the cyanide process and selective flotation, permitted profitable operation of many of the earlier discovered deposits. Some of the deposits were not extensive and yielded only small amounts of easily mined ore; most of these areas were mined out by 1920. Other operations continued until the late 1940's.

Since that time, mining activity has declined and, at present, only a few metal mines are in operation, such as the Victoria Copper Mine and a few small tungsten mines located near Wells. In 1979, employment in mining was 3.2 percent of total employment and income was 4.7 percent of the total personal income for the county.

Nonmetallic minerals like barite and phosphate that until recently had little value are now being sought after. At present, several barite mines are in operation.

Currently, the only minerals that are being produced in the resource area are sand and gravel, copper, tungsten, and barite. Mining has the potential for becoming a much larger sector in the county. Impacts on existing communities would be most influenced by the location of the mineral development.

The tax base in smaller communities is narrow. Therefore, these communities are ill-equipped to expand their social services in order to deal with a rapid change in population due to a mining boom. If the increased population was located within the city limits, then city taxes would increase revenues, but there would be a lag between the point at which additional social services were necessary and the point at which increased revenues became available.

Other Employment and Income Sources

Other significant sources of income and employment within the resource area are state and local government, trade, and construction.

Economic Interrelationships

In general terms, the region can be described as a rural area dependent upon export industries--livestock, mining, and tourism. Because the livestock, mining, and tourism industries bring money into the region from the outside, it is assumed that a change in demand for their products, whether it is an increase or decrease, will promote a similar change in the regional economy as a whole.

An impact coefficient or multiplier can measure the total income and/or employment generated from the introduction of new economic activity through various sectors of the economy, each of which has its own multiplier. For example, if the multiplier for an industry was 2.1021 and something happened to cause an increase in the output of the industry (such as increased grazing capacities), the total impact on the economy would be magnified by a factor of 2.1021 rather than the simple increase in output. Each industry within the economy will have a different multiplier, depending upon the interaction of that industry with others in the local economy. The following table shows the income and employment multipliers for the major selected industries within the region.

TABLE 2-4
INCOME AND EMPLOYMENT MULTIPLIERS ¹

<u>Selected Industries</u>	<u>Income Multiplier</u>	<u>Employment Multiplier</u>
Food and Kindred Products	2.1926	2.3354
Livestock	2.1021	1.8031
Amusements and Recreation	1.1925	1.1331
Minerals	1.1463	1.4741
New Construction	1.2502	1.3885
Retail Trade	1.0785	1.0193
Lumber and Wood Products	1.0000	1.0000

1/ Multipliers from Water for Nevada

Multipliers are relatively high for livestock, mining, and tourism (food and kindred products, and amusements and recreation). The Bureau has the potential to impact these three major industries. Livestock is impacted by administration of BLM grazing allotments, mining by regulations and policies associated with public lands, and tourism by recreational development on public lands. (Multipliers--measures of total impacts--will be utilized in the economic analysis of various sections of this document, including recreation, wildlife, and grazing management).

The Bureau of Land Management and Economic Impacts

In the Wells RA, 76 percent of the lands are Federal, of which 99 percent are managed by BLM. This underscores BLM's visibility as a Federal agency.

The livestock sector of the economy makes extensive use of Federal lands for livestock grazing. Federal grazing lands are used by livestock producers along with their individual private land holdings. The livestock industry can be generally classified as a low return investment. Producers typically have large investments in fixed capital (especially land) and continue production as long as variable costs (primarily feed) can be covered.

The granting of Federal land grazing permits increases the value of the land resource owned by livestock operators and has increased interdependence between the use of Federal and private lands in the livestock industry. This interdependence between public and private lands and the fact that the industry has a low return for investment are significant economic factors when addressing grazing allotment changes.

The mining industry is almost entirely dependent on public lands for exploration and development of new sources. Locatable minerals (minerals not considered leasable or salable) are the significantly valued minerals in the resource area. BLM takes no active role in encouraging development of locatable mineral resources.

The 3809 regulations (for reporting mining activities) were published in March 1980. With these regulations, information concerning mining operations occurring on Federal land administered by BLM will be readily available for the first time. The Bureau will use this information in making long-term planning and multiple-use decisions relating to all resource values and to ensure that lands with potential for economically significant mineral values are not inadvertently precluded from mineral development.

The BLM helps support the county's infrastructure through in-lieu-of-tax payments. In-lieu-of-tax payments are payments made to local government units having nontaxable Federal lands within their borders to compensate them for the burden resulting from the tax immunity of these lands. In fiscal year 1980, the in-lieu-of-tax payment to Elko County was \$443,250 (Nevada Progress Report for 1980; Elko County Treasurer's Office). This payment was distributed among the county's road fund, general fund, convention center, and other funds.

Indirect payments from BLM also contribute to the county's revenue. These payments include:

1. 50 percent of receipts from mineral sales statewide (\$248,320 to Elko County for FY 1981)
2. 4 percent of receipts from BLM land and material sales (\$63,294 to Elko County for FY 1981)
3. 12 1/2 percent of grazing fee receipts (\$159,801 to Elko County for FY 1981)
4. School fund allowances for children of parents that live or work on BLM or Indian lands (\$345,641 to Elko County for FY 1981)

In addition, the county benefits from the higher level of funding--95 percent--provided by the Federal government for highways on Federal land. Funding for highways on state land is limited to 75 percent.

The Wells RA contains many site specific areas with recreation values. The communities in the area are interested in increasing their tourist base. Developing recreation sites on public lands is seen as a promotional tool and a way of increasing lengths of stay. Quoting from the Elko County Plan, "To provide facilities for the tourist that will best meet his needs and at the same time enhance the service-oriented industry of the local community is a design motive in the recreation plan." The plan further states that it is desirable to preserve the open space character of the rest of the county and not "fragment the county with new roads and invite participation by spreading facilities throughout the area."

In addition to the use of Federal lands for the livestock industry, the mining industry, site specific tourist facilities, and county revenue sharing, there are Federal lands in the resource area which have value for various forms of dispersed recreational activities. These include big game and upland game hunting, water-based recreation, hiking, camping, and others.

Knowledge of the potential benefits and costs to each resource within the area economy as a result of potential Federal land policies could improve the base upon which decisions are made. These costs and benefits are defined within each resource section of this document under the economic analysis section.

Social Values and Public Attitudes Overview

Information in this section was derived from social analysis interviews conducted by the Elko BLM District economist in the summer of 1981. Thirty-five key members of the local community representing various user groups and points of view were interviewed using a standard list of 22 or 26 questions.

Residents of the area place a high value on open spaces, small populations, and the recreational opportunities of the area. Recreation means hunting, fishing, and ORV use to most local residents.

Independence and self-determination are of primary importance in the lifestyle to many people within the Wells RA. There is a tolerance for different ideas. The large amount of public land in the area was often mentioned as a very positive element in the lifestyle of local residents.

Lack of local control over the public lands was a concern in the area. The "sagebrush rebellion" provoked mixed comments. The local ranchers are

strongly in favor of state ownership of the public lands, while many other residents feel that state ownership would just lead to development, which might lock up the land against public use.

All local city officials were concerned over the availability of public land for expansion--residential and public purpose uses were mentioned. Local ranchers wanted more control of wild horses on their allotments--they felt wild horses are a threat to the cattle industry.

Management by BLM evoked mixed comments. Negative comments were that there are too many regulations and that these regulations have increased to the point of hurting the businesses which they were supposed to help; that there is a high degree of turnover among BLM personnel, making consistent management almost impossible; and that BLM policies change with each new administration. Positive comments were that BLM personnel have been cooperative in their dealings--mine employees in particular stated that they had a good working relationship with BLM--and that BLM is protecting the public lands from overdevelopment and "people pollution".

A detailed social analysis based on the findings of the social analysis interviews is included for each resource section.

CHAPTER 3

EXISTING SITUATION

DEMAND FORECASTS AND DEPENDENCE

SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT



LANDS

EXISTING SITUATION

The Wells Resource Area (RA) contains approximately 4,141,389 acres of public land. This equates to BLM administration of about 76 percent of the land within the resource area boundaries.

The demand for acquiring public lands in the Wells RA is comparatively high. This is predominantly the result of the checkerboard land pattern that bisects the resource area; the anticipated "boom town" growth levels of the major communities of Wells, West Wendover, and Jackpot; and the relatively recent resurgence of interest in developing land under the agricultural land laws.

The management of the checkerboard public lands influences intermingled private land uses and, in turn, the development of the checkerboard private lands impacts the intermingled public land resource values. The end result is that neither lands are utilized or developed to their full potential. This has prompted the private sector, as well as state and local government, to seek resolution of the problem through public land sales and land exchanges.

Community growth is another major factor contributing to the demand for acquiring public lands within the resource area. For various reasons, the towns of Wells, West Wendover, and Jackpot are requesting acquisition of public lands around their communities. They feel their communities can be developed as fast as additional support facilities sited on public lands obtained for public purposes, such as power and waste disposal facilities, will permit.

The remaining factor contributing to the demand for acquisition of public lands in the Wells RA is the high interest in agricultural development under the Desert Land and Carey Acts. Since January 1979, over 800 applications have been filed under these Acts. The majority of the interest lies with the Desert Land Act. However, under the Carey Act the applicant files with the state, thus making a level of interest determination difficult.

The Wells RA is traversed by a number of major transportation and distribution facilities. To date, no utility right-of-way corridors have been formally established. Major distribution and transmission lines and some transportation facilities are anticipated in the future. The establishment of corridors is necessary to provide the private sector secured routes for project planning purposes and to protect resource values from degradation by major right-of-way proliferation.

Current Management Requirements and Constraints

Consistency with Policies, Plans, and Programs of Other Agencies

THE STATE

The State of New York is a member of the United Nations and is a member of the United Nations Security Council. The State of New York is a member of the United Nations and is a member of the United Nations Security Council.

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State of New York, New York, New York

Consent of the People, State, and People of New York

In making land tenure adjustments and processing land use authorizations, it is necessary for BLM goals to be consistent with the goals of the state of Nevada, as well as Elko County and affected communities, while assuring the national interest has been served. This seemingly complex relationship rarely presents a problem except for inter/intrastate actions such as power plants, power distribution systems, communication systems, and major Federal programs such as the recently postponed "MX" project.

BLM's policies are not very divergent from state and local governments. The problems arise from local areas experiencing major adverse impacts from projects that will provide few, if any, local benefits.

Other Federal Agencies. Coordination with other Federal agencies is critical in accomplishing many lands actions. An important area for assuring coordination is at West Wendover, where the Air Force manages half of the lands within the township south of the town.

Coordination with the Forest Service is a well-established principle within the resource area. This is illustrated by the pending boundary adjustment case in Ruby Valley and the pending Sorenson land exchange, which involves selection of public lands.

Coordination with the Forest Service could prove mutually beneficial in resolving common land pattern problems in O'Neil Basin. It could also be beneficial to coordinate with the Forest Service for using public lands suitable for disposal throughout the resource area for acquiring high multiple use value land within the National Forest.

Coordination with the Department of Energy will be important to complete processing of Wells Rural Electric's proposed wind turbine electric generator on Pequop Summit as well as designation of energy-related utility corridors. Other agency coordination is generally minimal.

State and Local Agencies/Groups. Formal coordination with state agencies usually occurs at the State Clearinghouse review level. Major actions such as the Desert Land Entry program receive continual coordination at the BLM State Office level.

All land actions are presented to Elko County through its planning commission, with the exception of actions occurring within the corporate limits of the city of Wells. These actions are coordinated with the Wells City Manager. Joint coordination occasionally occurs, as was the case with the recently completed Wells sewage lagoon case involving a site just northwest of Wells' city limits.

Elko County is guided by its 1971 General Plan, and, when unincorporated communities are involved, specific master plans may be prepared. The master plan for West Wendover is nearing completion.

Other Constraints or Influences

Political considerations must also be evaluated in making land tenure adjustment and processing use authorizations. Most important of these political considerations is the state of Nevada's desire for more land in private ownership.

Description of Environment

Pertinent Lands Actions

The major land actions in the Wells RA have consisted primarily of Recreation and Public Purposes Act leases to communities, rights-of-way, and agricultural entries. In the future, more of the same can be expected, along with the addition of community expansion sales; land exchanges; and actions involving energy-related production, transportation, and distribution systems.

Land Pattern Problems

As previously discussed in this section, the major land pattern problem in the Wells RA is the checkerboard land ownership pattern. Another problem, though lesser in degree, is the scattering of isolated 40-acre parcels throughout the resource area. These parcels were state selection lands picked prior to the Taylor Grazing Act and chosen generally because there was water on them. The lands were selected intentionally, with subsequent transfer to livestock operators in mind. Having control of the water would then permit the livestock operations, in effect, to control the surrounding public lands. The theory no longer holds true, yet livestock operators are generally reluctant to give these parcels up.

Corridors

As previously discussed in this section, no corridors have been formally identified. Numerous alternatives are available for formal designation within the area, based on existing improvements (see overlay). Alternatives are also available on unused areas.

LANDS
DEMAND FORECASTS AND DEPENDENCE

Urban/Suburban Expansion Needs-Existing and Projected

The expansion needs within the Wells Resource Area (RA), both existing and projected, are best depicted by Elko County's and the city of Wells' land needs submissions to the Nevada State Governor for inclusion in a state wide land request to the Secretary of the Interior. These submission letters may be found in the Elko District files; the lands are shown on the lands overlay.

Availability of Nonpublic Land Suitable for Expansion

Within all communities, except perhaps Jackpot, there currently exists enough nonpublic land to accommodate additional development in the short term. However, these lands do not meet community plans for all types of use, such as commercial, residential, public purpose, and recreational.

Within West Wendover's unincorporated boundaries are 600 acres of undeveloped private land and 800 acres in the process of being developed. The preponderance of undeveloped lands are identified and zoned for commercial development. At the present time, there are approximately 125 acres of developed land.

Within Jackpot's unincorporated boundaries are 320 acres of undeveloped and 450 acres of developed land. Most of the developed land is commercial.

The city of Wells encompasses about 4.25 sections containing approximately 2,100 acres of private land. A relatively large quantity of both public and private land within the city limits is encumbered by easements and rights-of-way for the three railroad lines (one of which is being abandoned), Interstate 80, Highway 93, and numerous power and phonelines. About 860 of the 2,100 private acres are zoned agricultural for livestock grazing and crop production. Almost 320 acres of this agricultural land is flood-prone and not ideally suited to community development. The remaining acreage, approximately 1,240 acres, is zoned for commercial residential and public uses. The majority of this land is developed. Based on the above, approximately 540 acres of agriculturally zoned land are available and suited for community development in Wells. However, there is no guarantee the private landowners would make this land available.

Public land within the city adjoins private lands zoned for residential and agricultural uses and could be used for community expansion. The city adjoins private lands zoned for residential and agricultural uses and could be used for community expansion. The city will need expansion lands to accommodate the influx of people in connection with construction of the Thousand Springs Power Plant project, which is scheduled to begin in 1985 and be completed in 1994 or 1996.

Elko County Needs

As previously discussed, Elko County has expressed its land needs in support of unincorporated community expansion within the county. No other lands have been identified. The county has expressed the desire to acquire all lands via public sale versus lease or purchase under the Recreation and Public Purposes Act or lease for airport purposes under the Act of May 24, 1928, as amended. However, the economics of fair market value purchase will undoubtedly cause this policy to be modified, at least in the short term. It is anticipated that Elko County will pursue land acquisition under the above-mentioned acts to obtain the benefits of reduced or eliminated costs.

City of Wells Needs

The city of Wells has expressed its land needs as previously discussed. They have requested lands with no reference to means of acquisition. Discussions with the city manager have shown that some of the lands are going to be sought under the Recreation and Public Purposes Act. These lands are shown on the lands overlay.

State of Nevada Needs

The state of Nevada's needs are generally expressed by Elko County and the city of Wells. There are, however, exceptions. The state would like to acquire fee title to all their highway and material site rights-of-way. There is presently no authority to make such a blanket transfer. Under present authorities, all public lands containing these rights-of-way would require resurvey to allow for their disposal by legal subdivision. No funding is available now or in the foreseeable future to accomplish such a task. The state has filed under the Recreation and Public Purposes Act for two existing maintenance stations (see lands overlay), but they would prefer to acquire these in fee title.

Regional Needs

U.S. Forest Service-Idaho, Nevada. The only public land needs of the Forest Service have already been discussed in relation to the land exchange needs mentioned in the existing situation section or are pending Congressional approval, such as the N-4700 boundary adjustment.

BLM Districts. The Elko District has identified land needs around the city of Wells for construction of a detached fire yard and office facilities suitable for weekly office days (see lands overlay).

Other R&PP Act Lands

It is likely that religious organizations in Wells, West Wendover, and Jackpot will request lands under the recreation and Public Purposes Act for church facilities. It is also possible that some land will be needed for sanitation facilities in association with construction of the Thousand Springs Power Plant.

Corridor Needs

There is a need for formal designation of corridors in the Wells RA. The Thousand Springs power project will require transmission facilities to deliver power to the north and west for interstate distribution. The increase in electrical power demands from community expansion and DLE/Carey Act land development will require distribution lines throughout the resource area that should be concentrated into corridors.

Agricultural Land Needs

The demand for agricultural land throughout the resource area is constrained by the limited water resource. To date, the state has indicated enough water is available in Goshute and Independence Valley hydrographic basins to allow 14 entries under the Desert Land or Carey Act. Agricultural land entries would be most beneficial to existing farms and ranches but most of the interest in such land acquisition has been expressed by individuals not currently in agriculture.

Economic Analysis-Local and Regional

Urban/Suburban Land Uses and Demands

Urban and suburban land uses occur in the town of Wells (incorporated), Jackpot (unincorporated), West Wendover (unincorporated), Montello (unincorporated), and Victoria (unincorporated). Private lands around these communities include approximately 5,000 acres, of which about one-third are developed. Demand for urban and suburban lands for private development and public purpose land uses centers around these communities.

Jackpot. Jackpot is located on U.S. 93 at the Idaho-Nevada border. It was established in 1950 on a special (small town) land transfer. The population of Jackpot has increased dramatically, from a population of 350 in 1970 to 750 in 1975 to 809 in 1980. With the growth of population, Jackpot has changed from a community of trailers to one that consists of permanent houses, apartments, churches, a school, and a golf course.

Jackpot's economy is totally tourist/gaming based. Growth in recent years has been primarily due to the promotional abilities of the principal entrepreneurs and growth in the Twin Falls area. Growth in the future will depend on these factors, along with a continued desire for this kind of "recreational" ex-

perience. The plans call for growth to occur on BLM lands to the south, leaving private lands to the north as open space. Jackpot has an adequate water supply to support the development projections.

Wendover. Wendover is located on the Nevada/Utah border, with the principal part of the town being in Utah. It was established during World War II as an air base. Current employment is primarily in the gaming establishments, mining industries, and transportation. Most growth has come from the recreation section. Developers hope that Wendover can become to Salt Lake what Reno is to San Francisco and Las Vegas is to Los Angeles. The current populations of West and East Wendover are 395 and 1,100, respectively.

Government in the town is split between Wendover (Utah) and West Wendover (Nevada). Currently, the only residential development in West Wendover is a trailer court. Development in West Wendover is limited by water, unless a suitable supply can be found. On the Nevada side, private lands are limited; at least some development will have to occur on public lands.

Wells. Wells was first established in 1860 as a train water stop. Its economy is heavily dependent on tourism due to its location on U.S. Highway 40/Interstate 80 and U.S. Highway 93. Wells is located 70 miles from Wendover, 50 miles from Elko, 80 miles from Jackpot, and 100 miles from Ely, making it a logical stopping point for both East-West and North-South travelers. In the past, Wells served as a trading center for farmers and ranchers, but increased mobility has decreased the importance of this function, with most trade occurring in the larger cities of Twin Falls and Elko.

Growth for the city of Wells will be heavily dependent on the proposed Sierra Pacific Power Plant to be built 30 miles to the northwest. The construction of the plant is scheduled to start in 1985. It will be built with a construction work force of 2,200 employees, which will bring in a total of 5,000 to 7,000 new people. This population would require an estimated 1,017 units for married couples and 1,183 units for single employees.

At this time, it is not known if the preferred mitigation procedures would place emphasis on expanding the town of Wells to accommodate most of the project-induced influx of people, or if an entirely new community, at some as yet undesignated site, would be more satisfactory.

Wells, with a 1980 census population of 1,222 persons, is the nearest community to the plant site. Currently, there is no significant amount of available housing in Wells, and community facilities in Wells are not equipped to accommodate an influx of people on the scale required for construction of the power plant, should Wells be chosen to house the workers.

Other Communities. Contact, Currie, Deeth, and Montello are other permanent communities, but they contain less than 100 persons. Growth could occur in these communities from extraordinary development, such as the opening of a new

mine. However, unless this does occur, it is unlikely that these communities will generate demand for BLM land.

Agriculture

There are approximately 175,000 acres of irrigated land in the Wells RA. These irrigated acres are located primarily within the following areas: along the Mary's River and Thousand Springs Creek, in Hubbard and O'Neil basins, along the North Fork of the Humboldt River, in Starr and Ruby valleys, and along Huntington Creek.

Agriculture is virtually limited to irrigated forage production for critical winter feeding of range livestock in support of a ranching economy based on extensive rural rangeland use. Typically, less than 10 percent of harvested hay is sold, which means that 90 percent is used by the rancher directly in livestock production.

The most important limiting factor in further agricultural development is the short growing season. A wide variation in temperature between night and day retards plant maturing. There is only a 70 to 100 day frost-free season from about the middle of June until the first of September.

Other limiting factors include the lack of water, rough terrain, and poor soil. Even with these factors, the amount of irrigated farmland in the county has steadily increased, from 155,026 acres in 1954 to 224,000 acres in 1969 to 236,245 acres in 1974. Because of the costs of alternative feed sources for livestock, demand for irrigated hay land will probably continue to rise.

The Carey Act and the Desert Land Entry Act have provisions by which public lands can be converted into private agricultural land. Based on known water availability, there are approximately 10,000 acres of land within the resource area that may have potential for this type of agricultural development.

Factors Influencing Future Trends in Land Use

There are three major factors--tourism, energy development, and mining--that will influence future trends in land use in the resource area. These have both local and regional implications.

Tourism. Much of the tourism that is the economic base of the resource area comes from the population centers of Idaho and Utah. Other important population centers that influence tourism in Elko County are Las Vegas, Reno, and Los Angeles. Population projections for some of these areas are shown in table 3-1.

TABLE 3-1

POPULATION CENTERS AFFECTING THE WELLS RA

	<u>1980</u>	<u>1985</u>	<u>1990</u>
Las Vegas (SMSA) ¹	461,816	507,816	557,000
Reno (SMSA)	193,623	212,986	234,284
Salt Lake City (SMSA)	936,255	1,029,880	1,132,868
Idaho	943,935	978,800	1,060,600

¹SMSA = standard metropolitan statistical area

The large growth in these areas will generate a demand on recreation and gaming in the resource area. Population growth in the communities of Jackpot, Wells, and Wendover is a response to growth of these centers as well as the promotional ability of the local businessmen to short-stop business that has traditionally gone to Elko.

The resource area lies on important east-west and north-south transportation routes. Growth in population centers outside the resource area will generate increased transportation of goods through the area. Currently, the town of Wells is an important stop for commercial vehicles. Gaps that have existed in the I-80 Interstate System are currently being closed. This means that the communities of Wells and Wendover will be bypassed. The effects on the number of stops by traffic is unknown. Local businessmen hope that the number of stops will not decrease significantly.

Factors that may counteract or eliminate growth in recreational demand include a gasoline shortage, gas rationing program, or large increase in the price of gasoline.

Energy Development. As discussed previously, the city of Wells will be impacted dramatically by the influx of 2,200 construction workers for the new Sierra Pacific power plant. The regional implications of the new power plant are that it will bring construction workers, their families, and an associated "service" population from many parts of Nevada and surrounding states. The power plant will bring in a total of 5,000 to 7,000 new population members (using a population multiplier of approximately 2.75). This new population will create a demand for more urban-suburban land use, including housing (an estimated 1,017 married units and 1,183 single units), recreational facilities, water developments, social services, etc..

Mining. Mining activity in the region has the potential to be significant if future exploration uncovers new reserves. The new population associated with these mines would also result in more urban-suburban land use needs.

Social Values and Public Attitudes

The Checkerboard Land Pattern

The checkerboard land pattern has created specific problems in three parts of the BLM District. Speculators have purchased and subdivided the privately owned checkerboard lands around Montello, northeast and southwest of Elko, and

in Crescent Valley. Tracts in these areas have been sold through the mail to out-of-state buyers under low down payment and monthly payment terms. Several thousand tracts have been sold. This changes the ownership pattern from a few ranchers to many individuals, many of whom do not reside in the county. Access may be complicated if any of these private lands are to be fenced. One rancher who was interviewed for the social analysis stated that "these private land owners (around Montello) do not have any water or services out there and they don't really know what to do with their property."

Persons who were interviewed for the social analysis were generally aware of the problems associated with the checkerboard land pattern, but it was the ranchers who were the most sensitive to this problem. If public or private land could be consolidated, the ranchers felt that management would be enhanced. However, ranchers felt that land trades between private and public could be very difficult because private lands usually contain the water, making private lands much more valuable than public lands. One rancher stated that, unfortunately, public and private values relating to lands are usually the same; thus both public and private interests are after the same types of land.

Concern over checkerboard land ownership was also voiced in regard to recreational pursuits. There are certain checkerboard areas in or along the Ruby Mountains and in Lamoille Canyon - private land holdings - that are in the midst of recreational areas. Interviewees in the social analysis (12 percent) said that they would like to gain access to the Ruby Mountains so that they could do more hunting, fishing, hiking, and snowmobiling.

Land Ownership Adjustments for Public Purposes

It is the city and county officials (city managers, advisory council members, and mayors) that are most aware of the need for land ownership adjustments for public purposes. These officials are concerned that their cities within the resource area are landlocked by BLM land. Officials from all the cities in the area--Wells, Wendover, and Jackpot--stated they had needs for expansion for sewer and water systems, recreational development, housing, and other public purpose uses.

A few of these officials also thought that it took an extraordinary amount of time to acquire land from BLM for public purposes. One interviewee said it took up to four years in one instance. Delays in acquiring land were not necessarily attributed to the BLM but were, in most cases, of an unknown nature. It was also stated that land prices are artificially high because cities are surrounded by BLM land.

The city of Wells will be impacted dramatically by the influx of 2,200 workers for the construction of the new Sierra Pacific power plant. A need for land for expansion was voiced by city officials, county officials, and local businessmen. The Wells City Manager said that the population impact will be

felt in Wells even if the construction workers and associated populations--totaling 5,000 to 7,000--are located at the construction site rather than in the city itself. The new population will use shopping, schools, medical facilities, casinos, and recreational facilities in Wells.

The cities of Jackpot and Wendover are additional examples of high growth entities within the Wells RA. These cities are situated on the Nevada state-line, an attractive location for the development of casinos, restaurants, hotels and motels, and other tourist industry services designed to appeal to the increasing traffic from adjacent states. It is claimed by some local people that Jackpot is the fastest growing city in the nation. Continued growth of these cities will create more employment, population, and the associated demand for housing and services. With the anticipated growth, city and county officials have requested BLM lands for various public purpose uses. This interest in BLM land acquisition is expected to continue.

Desert Land Entry Program

Comments regarding the desert land entry program were mostly negative. Ranchers and others felt that 320 acres was not enough land to establish a farm operation in this area unless the applicant was an adjacent land owner. Only adjacent land owners can benefit.

The short growing season and the lack of water were mentioned as serious drawbacks in the resource area. One interviewer stated that "areas which could be developed have already been developed--only marginal land remains." Another rancher thought that the high cost of diesel-powered irrigation made DLEs prohibitive in areas where electric power does not exist.

LANDS
SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT

Availability and Suitability of Lands

Expansion/Public Purpose Lands

As previously discussed, the expansion/public purpose lands needed by the various communities have been indicated by those communities and are shown on the lands overlay. These lands are available with the exception of some unsurveyed lands requested which are adjacent to West Wendover. These will be available upon completion of the survey.

All the lands are suitable for community expansion or public purposes except, perhaps, for some 120 acres of the lands the city of Wells has requested which are within flood-prone areas and are considered wetlands. Disposal is not prohibited, but protective covenants may be required in patents or leases.

Corridors

Sufficient major utility rights-of-way traverse the Wells RA to permit utility corridor designation. No needs have been identified by private industry that could not be accommodated in these areas.

A narrow mountain pass north of Contact might be the limiting factor in using a corridor to the north. However, projected needs do not appear to exceed the land's capability. It would be possible to designate an alternate route in this area. This will be shown on the opportunity analysis overlays. Visual resource considerations should be evaluated before exact corridor routes and widths are designated.

Agricultural Development

Ample land exists within the Wells RA to accommodate agricultural development, given the limited water that is available. This, of course, does not take into consideration conflicting resource values.

Infrastructure and Anticipated Growth Impacts

This section applies primarily to expansion/public purpose lands and agricultural development.

Expansion/Public Purpose Lands

The major communities are generally not prepared for large projects, such as the Thousand Springs Power Plant that could bring a temporary influx of 5,000 to 7,000 people to the city of Wells. Wells and Jackpot do have sewage facilities to accommodate their projected normal growth past 2,000 A.D. West Wendover is in the process of developing such a facility.

Jackpot has sufficient lands to meet sanitary landfill needs for its projected normal growth past 2,000 A.D. Wells, however, is in need of more landfill area. West Wendover currently disposes of trash in Utah but anticipates the need for land in Nevada within the next two years.

None of the communities has health care or other social services beyond those required to meet existing community needs. If such services were to be expanded, this could create a demand for additional public lands.

Agricultural Development

To accommodate possible agricultural development, Elko County may have to develop more landfill sites and public roads. Exact areas will not be known until the water availability question has been resolved.

Zoning Constraints and Other Influences

Public lands within the Wells RA are zoned for open space. The zoning of private lands, however, may affect what uses public lands are devoted to. Generally, this would apply only to corridor designation, and only if corridors impacted residential areas.

ACCESS
EXISTING SITUATION

Current Management Requirements and Constraints

Consistency with Policies, Plans, and Programs of Other Government Entities

U.S. Forest Service. The U.S. Forest Service has some roads that are extensions of BLM roads. These roads lead into the Humboldt National Forest within the Jarbidge and Ruby Mountain areas.

This situation occurs within the Wells RA mainly in the Jarbidge area. Easements on BLM roads across private lands are a priority to the Forest Service because it is dependent on these roads. Specific roads and acquisition opportunities have been identified and are included in the Opportunity Analysis section.

U.S. Geological Survey. The U.S. Geological Survey reports that they depend on a few BLM roads for stream gaging and water well level measurements. These roads have been identified and are included in the Opportunity Analysis section.

Soil Conservation Service. The Soil Conservation Service reports that they depend on a few BLM roads for their snow survey courses and their Snotel data sites. These roads have been identified and are included in the Opportunity Analysis section.

Nevada Department of Wildlife. The Nevada Department of Wildlife (NDOW) is heavily dependent on BLM roads to carry out its programs, which include surveys, wildlife population enhancement, and enforcement of hunting and fishing regulations. These roads have been identified and are included in the Opportunity Analysis section. NDOW does not have many current problems with legal public access. However, in a few cases, they are blocked from fishing and hunting areas by private lands.

The following problem areas have been identified by NDOW field personnel:

1. Clover Valley-Wood Hills-Taylor Limited Ranch (not on transportation network)
2. McDermitt Canyon, Cherry Creek Range (not on transportation network)
3. Spruce Mountain, no trespassing signs put up by miners (BLM road #1037)
4. Bluff Creek area to Trout Creek--Victor Land & Livestock Co. (BLM road #1109)
5. L&D Mountain--West of Contact (miners have denied access)

Nevada Department of Forestry. The Nevada Department of Forestry does not own any roads in the district and is heavily dependent on the BLM transportation network for fire control. Legal public access has not been a problem because private land owners readily allow access for fire control.

Indian Tribes. One of the roads to the Odgers Indian Reservation (Te-Moak Shoshone) crosses private land and there is no easement. This should cause no problems in the future because other established public use roads can be used for access to the reservation.

State Legislature. Recent bills (A.B. #13 and #60) passed by the Nevada State Legislature demonstrate the state's recognition of the legal public access issue. One of these bills states that "the state land registrar shall identify existing routes of access which lead to public lands and have the following characteristics...excellent hunting, fishing, camping, hiking, sightseeing or other recreational opportunities....If such route is designated, the land must be conveyed with a right-of-way and all rights of access and abutter's rights for the route reserved in the name of the State of Nevada."

Description of Environment

Access Problems and Issues

BLM cannot effectively manage its lands without adequate legal access. Legal access includes the right to enter adjacent public land from an existing public road or trail, as well as from roads or trails that lead to public land through private property.

BLM has no inherent right of legal access to public lands over private property. Such rights must be acquired. An easement is a right acquired by BLM to use or control private property for a road, trail, or other specified purpose.

There are only four easements in the Wells Resource Area (RA). This underscores the fact that there has not been a large problem in the past with legal public access in the area.

However, there is no assurance that the legal public access issue will remain static in the future. As populations, recreational use, and mining activities increase, access problems may multiply rapidly. Wherever a BLM road crosses private property, there is a potential for an access problem.

The Transportation Plan and Legal Public Access

The Transportation Plan shows the location of roads that the BLM considers necessary for access to public domain lands. This plan shows that there are dozens of private property crossings by BLM roads with no easements.

An existing access inventory has been developed as shown on the Transportation Plan. The access inventory is needed as a guideline for district revision of the Transportation Plan to eliminate, if possible, BLM responsibility for

roads which would require the purchase of economically unfeasible easements. Such roads might better be maintained by county governments or other agencies.

As stated previously, there are only four easements in the Wells RA. These are:

1. T-Creek Road Easement on the Mary's River (NW1/4 NW1/4 of Section 17 and the NE1/4 NE1/4 of Section 18, Township 42 North, Range 60 East, Mount Diablo Meridian, Elko County)
2. Big Springs Ranch near Shafter (Section 9, Township 34 North, Range 67 East)
3. Big Springs Ranch near Shafter (Section 22, Township 34 North, Range 67 East)
4. Sorensen Ranch (Sections 4 and 9 of Township 32 North, Range 66 East and Sections 18, 20, 29, and 32 of Township 33 North, Range 66 East)

Maintenance Responsibilities

There are approximately 2,000 miles of BLM roads in the Elko District. It is estimated that roughly 800 miles occur in the Wells RA. In a typical year, BLM will contract for road improvement work with the county government. BLM tries to maintain their roads as much as possible, given funding and personnel limitations.

Currently, there is a maintenance inventory being performed which is approximately 40 percent completed. The completion date for this inventory is now in question because of funding limitations.

The inventory will show a sufficiency rating between 1 and 5, with "1" being good, "3" being fair, and "5" being poor and requiring four-wheel drive. The inventory will also plot improvements which are needed, such as grading, cattleguards, culverts, and water bars.

ACCESS
DEMAND FORECASTS AND DEPENDENCE

Projected Access Needs

Woodland Management

Many stands of trees are not accessible by road at this time. Legal planned access is necessary for optimum management and protection of all available resources. Legal access will ensure the possibility of continued harvesting and management.

There is currently harvesting by commercial Christmas tree cutters in five designated areas. Some of these areas lack legal public access, thus creating possible problems in the future. One area has already been restricted to limited use by a land owner (Big Springs Ranch).

Recreation

There is a potential for an access problem at Crittenden Reservoir. Part of the road to the reservoir crosses private property.

Bishop Creek Reservoir has the potential for future development, especially since it is close to the projected dramatic increase in population at the Sierra Pacific Power Plant. Before development could be planned, easements or land exchanges would be needed in the area.

There are dozens of roads within the Wells RA used by recreationists. Many of these cross private land. Priority for acquiring legal public access should be based on the amount of use and, to a degree, on whether the road is a multiple-use road (used by miners, ranchers, range personnel, etc.).

Aquatic Wildlife

Access problems have been very infrequent within the BLM fisheries management program. Priority for legal access for BLM personnel would be given to fisheries containing threatened and endangered species and then to fisheries with the greatest angler day pressure and demand. Priority for legal public access for fishermen would be given to fisheries with the greatest angler day pressure and demand.

Terrestrial Wildlife

Access problems have been very infrequent in the BLM terrestrial management programs for either BLM personnel or the general public. Management areas are so large that access can usually be achieved by more than one road. Priority for legal public access for hunters would be given to areas with the greatest hunter day pressure and demand.

Wilderness

Access problems have not been a factor in the wilderness program. Only one of the four wilderness study areas (WSAs)--the Bad Lands WSA--has the potential for a legal public access problem. The two roads that lead into the Bad Lands WSA cross private lands--Twin Meadows ranch to the northwest and Burnt Meadows to the southwest. Current legal public access problems do not exist. Without legal easements though, there is no assurance that problems won't occur in the future, particularly if a wilderness area is designated and recreational use increases.

Minerals Management

This program has had infrequent problems with legal public access. Some rare problems have occurred where miners would not allow individuals to cross their claim. The law, however, says that mining claims can be crossed as long as there is no disturbance or destruction caused by the public.

The BLM minerals management program makes use of many roads that lead to operating mines and past mining operations. Several of these roads cross private property. Typically, the mining company has acquired easements or has at least established working relationships with private land owners. There may be some roads that are being used for mine operations that cross private property without easements. These roads could lead to access problems for miners and the BLM minerals management program. If any of these roads do exist, they should be identified for possible easement acquisition by the mining company.

There are also some areas where mineral resources exist but there are no roads into the area. If new roads are established into these areas, the legal public access issue should be addressed. One of these areas with mineral development potential is the Goshute area.

Livestock Grazing/Range Improvement

The range management and development program has had very infrequent problems with legal public access. Many of the roads travelled by range personnel are 4-wheel drive roads as opposed to the more heavily travelled public recreational type roads.

There are many places where range management roads cross private property, thus creating a potential for legal access problems. Only those roads which are used most often by range personnel and are multipurpose roads (recreational, mining, etc.) should be considered for easement acquisition.

It should be noted that BLM policy is not to install cattleguards and pipelines or develop new roads without first acquiring an easement to the pertinent property.

Social Values and Public Attitudes

The great majority of the individuals who were interviewed (94 percent) want to be provided with access through private lands to public lands. They do not want to be blocked from fishing, hunting, hiking, mining, woodcutting, or other activities. Many also recognize that the private landowner has rights that must be respected. A typical statement was that public access through private lands to public lands should be reasonable and that problem situations should be dealt with on a case-by-case basis.

The ranchers in the area who were interviewed were generally in agreement with the need for public access through private land. However, they were more sensitive than others about having their rights and property protected. Most ranchers (70 percent) felt that efforts should be made to deal with the individual landowner to arrive at a solution, with each situation being dealt with on an individual basis. One rancher advocate stated that "personal liability and compensation for damages should be paid by the BLM or the Forest Service to the land owner". From this analysis, it is obvious that the ranchers demonstrated a definite concern for the public needs but also wanted to protect their own interests.

A small percentage (6 percent) of the sample was against public access through private lands. This attitude was typified by the following comment from a rancher's daughter: "Gates are left open and vandalism occurs. The public doesn't deserve access through private lands. A great number will have to suffer because of a few careless individuals."

RECREATION (SPECIAL MANAGEMENT)

EXISTING SITUATION

The Ruby Marsh Campground and South Ruby Marsh and Tabor Creek undeveloped recreation areas constitute the existing recreation sites administered by BLM in the Wells Resource Area (RA). Table 3-2 shows the facilities at these sites.

The Humboldt National Forest administers 11 campgrounds in Elko County, 6 of which are situated near BLM-managed lands in the Wells RA. The 6 campgrounds include Jarbidge, Pine Creek, Angel Lake, Angel Creek, Lower Lamoille, and Thomas Canyon.

Public recreation facilities can also be found at the Ruby Lake National Wildlife Refuge. Here, facilities are limited to a boat ramp and several restrooms.

Other recreation management areas in the region include Salmon Falls Creek Reservoir in Idaho, Wildhorse and Wilson reservoirs, the Jarbidge Wilderness Area, the Ruby Crest trail, and the Ruby Mountains Scenic Area.

Private facilities in the resource area are limited to recreational vehicle parks and campgrounds. Privately administered parks and campgrounds are located at Jackpot, Wells, Ryndon, Currie, and Trout Creek.

Off-road vehicle (ORV) use in the resource area is dispersed and occurs in conjunction with related recreational activities, such as hunting and fishing. Some intensive ORV use occurs in about a 2-mile radius around population centers such as Jackpot, Wells, Wendover, and Elko.

Current Management Requirements and Constraints

The Bureau has been directed by Washington Instruction Memorandum No. 80-393 dated March 21, 1980, to assess and evaluate those rivers identified by the National Park Service's River Inventory and determine their suitability for inclusion into the National Wild and Scenic Rivers System (Wild and Scenic Rivers Act-PL-542, 1968). A failure to comply with this memo would be inconsistent with the intent of the act.

Executive Order 11989 dated May 24, 1977, requires Federal agencies to designate all public lands as either "open", "limited", or "closed" to ORV use. Washington Office Instruction Memorandum No. 82-325 states that designation work is to be done as an integral part of the RMP planning effort when it is identified as a significant recreation issue or concern.

FIGURE 3-1

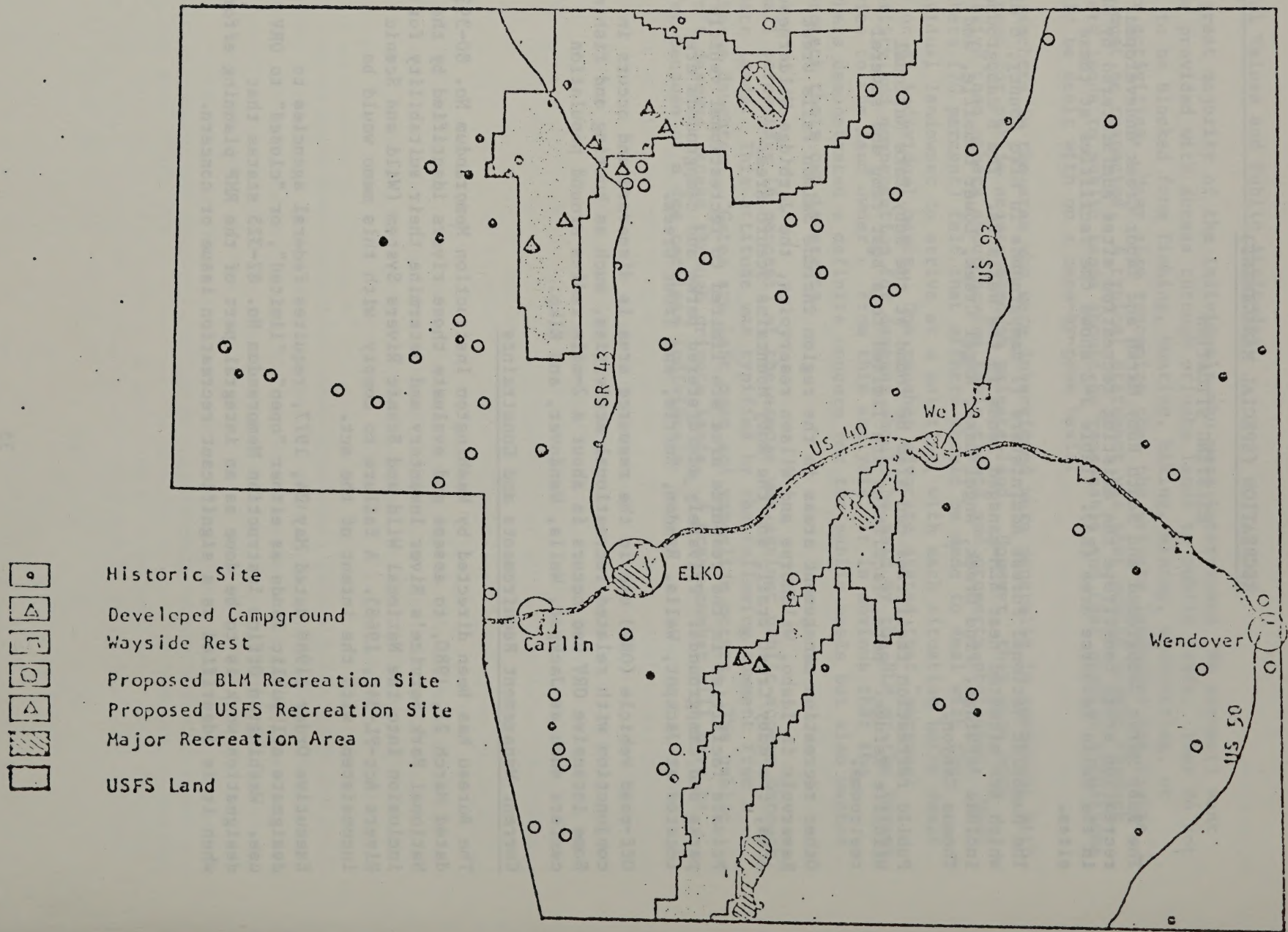


TABLE 3-2
EXISTING RECREATION SITES (BLM)

Area	Sanitation Facilities	Picnic Table	Parking Area	Trash Facilities	RV Sites	Signs	Other
Marsh Campground	X	X		X	X	X	
South Ruby	X						
Tabor Creek	X					X	

If an administrative land transfer between the U.S. Forest Service and BLM (the relinquishing of lands along the east side of the Ruby Mountains) occurs, the Ruby Marsh Campground will be placed under the jurisdiction of the Humboldt National Forest. Until the transfer is official, the Bureau will remain responsible for the operation and maintenance of the site.

Consistency with Policies, Plans, and Programs of Other Agencies

Other Federal Agencies. Other Federal agencies' policies, plans, and programs are generally consistent with those of the Bureau. The Bureau manages and protects public land resources used for a variety of activities such as river rafting, hiking, camping, hunting, fishing, and ORV use. Other agencies with management programs similar to the Bureau's include the National Park Service, U.S. Forest Service, and U.S. Fish and Wildlife Service.

State and Local Agencies/Groups. The Nevada State Parks System, as set forth in the Statewide Comprehensive Outdoor Recreation Plan (SCORP), visualizes the Bureau as one of several agencies responsible for providing recreation facilities on public lands where demand occurs. The statewide plan also identifies the need for agencies such as the Bureau to manage unique natural and scenic areas.

Local groups and individuals sampled (by the Elko District economist in 1981) in Elko County expressed general satisfaction with BLM's current recreation management program. Several potential areas for future recreational development were identified by the group (see demand forecasts and dependence section).

The General Plan for Elko County Nevada published in June 1971 displays over 50 proposed BLM recreation sites in Elko County (see figure 3-1). Elko County offers some of the highest potential lands in the state for recreation sites. However, due to budget constraints, the numerous proposed BLM recreation sites listed in the county plan are not consistent with the Bureau's current policies toward recreation management.

Description of the Environment

Recreation Opportunity Areas

Of prime importance in the Wells Resource Area are the BLM-administered Ruby Marsh Campground and South Ruby Marsh undeveloped recreation area. The 35-unit campground and South Ruby Marsh are located at the eastern base of the Ruby Mountains on public lands between the Humboldt National Forest and Ruby Lake National Wildlife Refuge. Both the campground and South Ruby Marsh receive high visitation from about May until the end of October. Recreation opportunities available in the area include camping, picnicking, sightseeing, birdwatching, and fishing (at the Ruby Marsh).

Bluebell, Goshute Peak, and South Pequops wilderness study areas (WSAs) provide opportunities for backpacking, horseback riding, fossil collecting, sightseeing, and dispersed camping. Recreation opportunities in the Badlands WSA include fishing, hunting, sightseeing, hiking, and kayaking. The Badlands area is also of very high scenic quality.

An important portion of Salmon Falls Creek for recreationists is an 8-mile stretch of river from Highway 93 near Jackpot, Nevada, to the Idaho border. The river continues another 8 miles in Idaho before entering Salmon Falls Reservoir. The first 5 miles from Highway 93 downstream to a fish barrier dam provide outstanding fishing for rainbow and German brown trout. The entire 16-mile length offers good conditions for recreational rafting and canoeing from March through July. Less than suitable conditions continue through August. Other opportunities include swimming, camping, backpacking, and sightseeing. Ingress and egress points are provided at Highway 93, the fish barrier dam, and Salmon Falls Creek Reservoir (Idaho).

Crittenden Reservoir, surrounded by private land, is managed by the Nevada Department of Wildlife (NDOW) as a quality trout fishery. Only artificial lures and flies can be used. The limit is three trout and they must be at least 15 inches in length. Crittenden Reservoir attracts people from all over the state as well as from Utah and Idaho. Lands of Sierra Company has recently acquired the land which surrounds Crittenden Reservoir. The company has expressed an interest in possibly exchanging this land with the Bureau. A land exchange with the Bureau would help assure future access to the reservoir and help protect the quality of the fishery.

Bishop Creek Reservoir is located only 16 miles north of Wells, Nevada, via Highway 93. The dam and most of the land surrounding the reservoir are privately owned. Of the approximately 5 miles of shoreline, about 1 1/2 miles are public land. Because of its location, this reservoir could meet much of the water-based recreation demand for residents of Wells. Access to the reservoir is currently impossible from the west because of a locked gate and access is very difficult from the east because of poor road conditions.

A total of 26 miles of the Mary's River, from its source within the Jarbidge Wilderness Area to the west boundary of section 13 of T. 42 N., R. 59 E., are included in the NPS nationwide list of rivers with potential for inclusion in the National Wild and Scenic Rivers System. About 5 of these miles are administered by the BLM and 5 are in private ownership, with the remaining 16 miles being under USFS administration. The stream contains Lahontan cutthroat trout, some of which are trophy class. Only artificial lures can be used and a limit of five trout is enforced.

Tabor Creek is an undeveloped BLM-administered recreation site located approximately 25 miles northwest of Wells, Nevada. The relative proximity of this site to the town of Wells draws several local residents to the area to picnic and fish. The area is also used as a base camp for mule deer hunters in the fall.

Statewide Comprehensive Outdoor Recreation Plan (SCORP)

An important aspect of outdoor recreation in Nevada (as pointed out in the 1977 SCORP) is its strong orientation to water resources.

Elko County is located in SCORP's Region V (see figure 3-2). The statewide plan states that, based on the 1976 participation rates, there will be growing deficiencies in Region V in providing lake-use activities such as fishing, motor boating, and nonmotor boating (see table 3-3). The statewide plan also reveals that camping and picnicking facilities are deficient to meet outdoor recreation needs in Region V (see table 3-4).

FIGURE 3-2

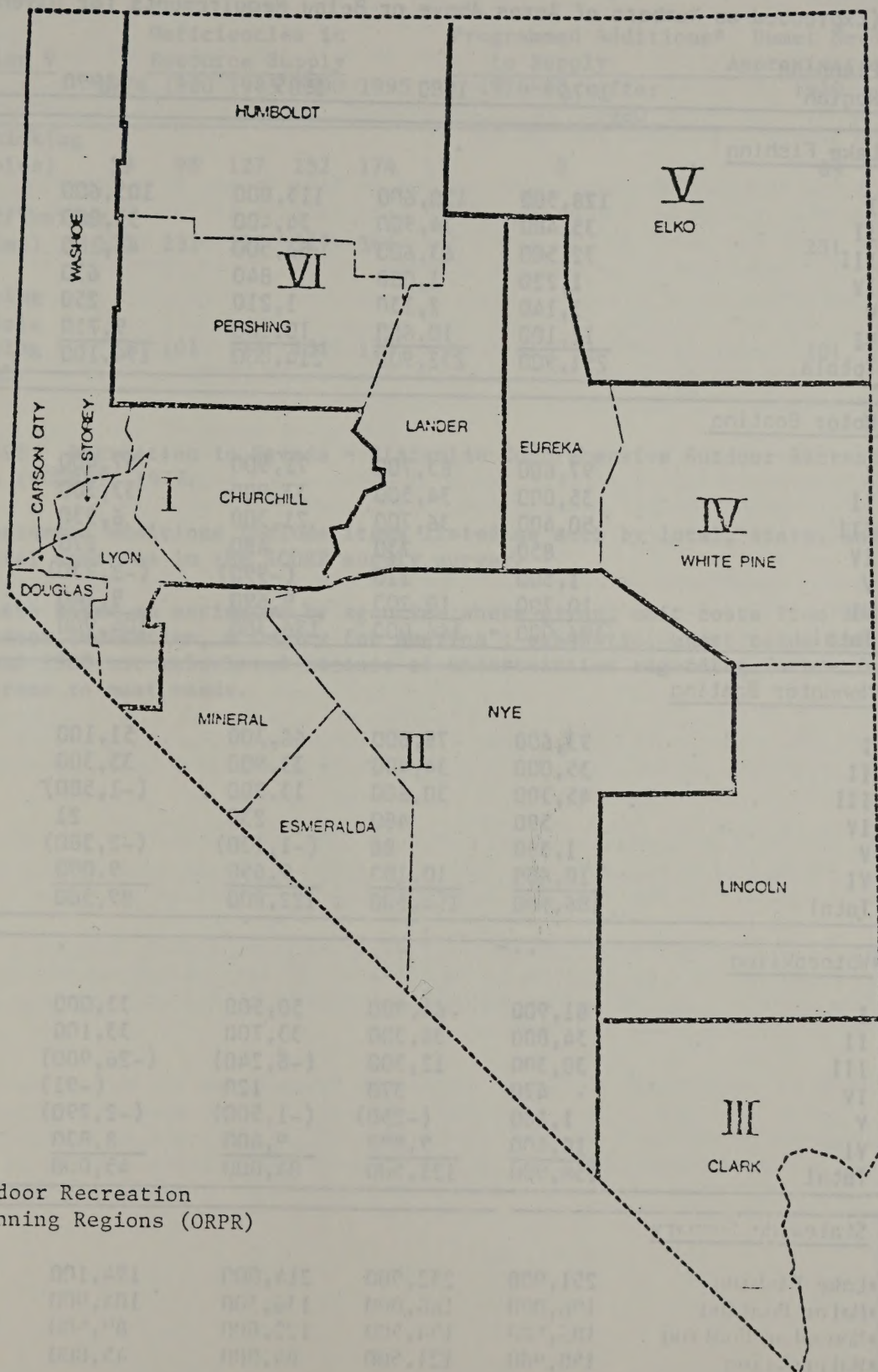


TABLE 3-3

Cumulative Effect of Separate Lake Activities on Total Supplies
(Expressed as Numbers of Acres Above or Below Requirements for Given Years.)

Planning Region	1976	1980	1985	1990	1995
Lake Fishing					
I	128,500	120,600	113,800	105,600	100,200
II	35,400	34,900	34,400	33,800	33,300
III	72,500	63,600	53,500	44,100	36,000
IV	1,220	1,080	840	630	440
V	3,140	2,130	1,210	250	(-490)
VI	11,100	10,600	10,200	9,710	9,370
Totals	251,900	232,900	214,000	194,100	178,900
Motor Boating					
I	97,600	83,700	71,900	57,400	48,100
II	35,000	34,500	33,900	33,300	32,900
III	50,400	36,700	21,300	6,930	(-5,560)
IV	850	730	480	270	80
V	1,500	210	(-990)	(-2,230)	(-3,190)
VI	10,700	10,200	9,690	9,140	8,760
Total	196,000	166,000	136,300	104,900	81,100
Nonmotor Boating					
I	93,600	78,800	66,300	51,100	41,200
II	35,000	34,400	33,900	33,300	32,800
III	45,300	30,600	13,900	(-1,580)	(-15,200)
IV	590	480	230	21	(-170)
V	1,390	86	(-1,130)	(-2,380)	(-3,360)
VI	10,600	10,100	9,650	9,090	8,710
Total	186,500	154,500	122,800	89,500	63,900
Waterskiing					
I	81,900	64,900	50,500	33,000	21,600
II	34,800	34,300	33,700	33,100	32,600
III	30,300	12,300	(-8,240)	(-26,900)	(-43,500)
IV	470	370	120	(-91)	(-290)
V	1,100	(-250)	(-1,500)	(-2,790)	(-3,800)
VI	10,400	9,800	9,400	8,830	8,430
Total	158,900	121,500	84,000	45,000	15,000
Statewide Summary					
Lake Fishing	251,900	232,900	214,000	194,100	178,900
Motor Boating	196,000	166,000	136,300	104,900	81,100
Nonmotor Boating	186,500	154,500	122,800	89,500	63,900
Waterskiing	158,900	121,500	84,000	45,000	15,000

TABLE 3-4
COMPARISON OF DEFICIENCIES & CURRENTLY PROGRAMMED
COMMITMENTS TO MEET OUTDOOR RECREATION NEEDS

Region V	Deficiencies in Resource Supply					Programmed Additions* to Supply		Unmet Needs and Approximate Costs**	
	1976	1980	1985	1990	1995	1976-80	After 1980	1980	1980 \$ Costs
Picnicking (tables)	59	98	127	152	174	9		89	\$22,500
Tent/Trailer (sites)	175	231	278	327	364			231	782,000
Camping Vehicle Camping	73	101	125	151	170			101	386,000
TOTAL									1,190,500

SOURCE: Recreation in Nevada - Statewide Comprehensive Outdoor Recreation Plan (SCORP), 1977.

*Programmed additions include items listed as such by local, state, and Federal agencies in the SCORP supply survey.

**Costs based on estimates by agencies where given, unit costs from BOR report "Outdoor Recreation, A Legacy for America"; otherwise, unmet needs and costs beyond 1980 not calculated because of uncertainties regarding future funds or programs to meet needs.

RECREATION (SPECIAL MANAGEMENT)
DEMAND FORECASTS AND DEPENDENCE

County Demands

As population areas in Elko County increase, so will the demand for more urban and nonurban recreation lands. The leasing of public lands to local communities for Recreation and Public Purposes is a viable method of meeting increasing demands for urban recreation.

The demand for nonurban recreation activities in Elko County will continue to increase as the population increases. Some deficiencies in resource supply will occur in future years unless additional recreation areas and/or facilities are developed by either the private sector, state agencies, or Federal agencies.

Demand for additional recreation sites will be further intensified with the influx of workers needed to support existing and future mineral and energy related operations in Elko County.

By 1985 or 1986, an estimated 2,200 powerplant workers (Station Z) and their families could be living in or near Wells, Nevada. This sudden population increase could have a significant impact on the management of existing or proposed recreation sites.

The Ruby Marsh Campground is currently experiencing about 25,000 visitor-days annually and a 50 to 60 percent occupancy rate through its 6-month use season. A large increase in visitation at the campground could expedite the deterioration of resources and facilities. Visitation is expected to increase by 20 percent by 1985.

Undeveloped areas, such as Tabor Creek, Crittenden Reservoir, Salmon Falls Creek, and possibly Bishop Creek, will also experience visitor use increases which could lead to resource damage.

Recreation activity occasions projected through 1995 for potential recreation management areas in the Wells RA are listed in table 3-5. Recreation visits and economic impacts in the Wells RA and Elko County are listed in table 3-6.

Hunting activity varies sharply from season to season and occurs primarily in the fall. Participation in hunting is much higher in less urbanized regions such as Elko County. In 1975, Elko and White Pine counties lead the state in hunting participation rates per capita.

Over 220 public miles of stream in the resource area contain one or more game fish. Areas which offer outstanding fishing opportunities, such as Salmon Falls Creek, contain German brown and rainbow trout exceeding 20 inches in length.

According to the 1975 participation interviews conducted by the Nevada State Parks System, Elko County residents rated fishing as their favorite summertime activity.

Regional Needs

United States Forest Service (USFS)

The Humboldt National Forest contains several major attractions within the region, drawing thousands of people into the area yearly. The 400,000-acre Ruby Mountain Ranger District experiences over 300,000 visitor days annually. As recreation activities such as hiking, backpacking, crosscountry skiing, snowmobiling, and horseback riding continue to increase in popularity, visitation will increase accordingly.

The Jarbidge Wilderness Area receives over 21,000 visitor days annually, 45 percent of which represent out-of-state residents. Primary recreation activities in the area include hiking, backpacking, sightseeing, and fishing.

Other BLM Districts

The Burley, Idaho, District's primary recreational demands are centered around water-based recreation activities such as fishing, waterskiing, and boating. The BLM-administered Salmon Falls Creek Reservoir in southeast Idaho experienced over 44,000 visitor days for water-based recreation in 1980. The district projects about a 3 percent per year increase in fishing and boating at the reservoir. Based on professional knowledge of the area, at least half the recreational use along Salmon Falls Creek in Nevada occurs by Idaho residents, who participate primarily in float-boating and fishing activities.

Both the Cottonwood-Salmon Falls area and the Bad Lands portion of Salmon Falls Creek are within 25 miles of Jackpot, Nevada.

The proximity of these areas to Jackpot, coupled with the expected growth rates of the town (see table 2-1: Population Projections in Economic Overview section) and tourism in general, will result in an increase in visitor use along the creek.

Current demand for water-based recreation in White Pine County is greatly exceeding resource supply. The Ruby Marshes serve as the only major water-based recreation area in White Pine County. The Ruby Marsh Campground and South Ruby undeveloped recreation area will continue to receive an

increase in visitation by White Pine County residents as growing numbers of people are drawn to the area to participate in boating, fishing, sightseeing, and camping activities. Recreationists from White Pine County account for more than one-third of the visitor use at the campground (about 8,250 visitor days).

TABLE 3-5
RECREATION ACTIVITY OCCASIONS*

Unit	1981	1985	1990	1995
Ruby Marsh C.G.	23,100	25,872	29,750	34,200
South Ruby Marsh	16,800	18,800	21,600	24,800
Tabor Creek	900	1,260	1,386	1,600
Bad Lands	1,000	1,120	1,300	1,500
Cottonwood/Salmon				
Falls Creek	2,800	3,100	3,500	4,000
Crittenden Res.	6,500	7,200	8,300	9,550
Bishop Creek				
Reservoir	N/A	Unknown	Unknown	Unknown
Total	51,100	57,352	65,836	75,650

*Recreation Activity Occasion: One person participating in a recreational activity for any portion or all of a 24-hour period.

Economic Analysis-Local

Popular recreation activities in Elko County include hunting, fishing, winter sports, picnicking, backpacking, and camping. Hunting and fishing are by far the most significant recreational activities in the resource area.

Hunting

The Elko County area is famous for mule deer hunting. Many trophy heads have been taken by hunters from all over the United States. Approximately 27,800 deer hunter days accounted for \$811,204 in expenditures in the Wells RA in 1980.

One of the largest migratory movements of deer in the U.S. passes yearly through the Elko County area. The high mountain country along the Nevada-Idaho border is the source of the movement. Deer follow the north/south-oriented mountain chains southward to their winter ranges--the more open and dry mountain country to the south.

The southern and central portions of the county provide excellent food habitat for chukar partridge. These game birds, introduced into the area during the

TABLE 3-6
ECONOMIC IMPACTS - RECREATION VISITS/WELLS RESOURCE AREA

Activity	Year	¹ Estimated Activity Occasions	Expenditure/day	Total Expenditures	Income	Employment
<u>Hunting</u>	1980					
Upland Bird		11,760	\$34.35	\$403,956.00	\$119,571	16.94
Water Fowl		6,007	40.42	242,802.94	71,870	10.18
Rabbits		3,237	33.85	109,572.45	32,433	4.60
Antelope		75	29.18	2,188.50	648	.092
Deer		27,800	29.18	811,204.00	240,116	34.02
² <u>Fishing</u>	1970-79					
Stream		5,100	26.52	135,252.00	40,035	5.67
Lake/ Reservoir		50,200	26.52	1,331,304.00	394,066	55.83
<u>Camping</u>	1981	19,100	13.50	257,850.00	76,324	10.81
<u>Picnicking</u>	1981	2,300	4.00	9,200.00	2,723	.39
<u>Floatboating</u>	1981	100	15.00	1,500.00	444	.06
TOTAL		125,679		\$3,304,829.80	978,229	138.61

¹Activity Occasion: One person participating in recreational activity for a portion or all of a 24-hour period.

²Fishing: Reflects a 10-year average; lake/reservoir figure includes Ruby Marshes, administered by U.S. Fish and Wildlife Service. Only 4 percent of reservoir fishing occurs on BLM administered land. Expenditure per day was taken from U.S. Forest Service, Forest Dollar Values/RVD for Wildlife and Fish, 1978. Includes an inflation factor.

1930's, have spread and multiplied until they now provide some of the finest game shooting. About 12,216 hunter days accounted for \$419,620 in expenditures in the county in 1980. This was 45 percent more than in 1979.

Sage grouse are another fine upland bird. Geese and ducks are plentiful on the marshes, fields, streams, and reservoirs. Cottontail rabbits are found over most of the area. Limited antelope numbers are also present in certain areas.

Table 3-7 shows the expenditures, income, and employment impacts of hunting in the area.

Fishing

Stream fishing in the Wells RA provides approximately 5,100 angler days of recreation activity per year. Fifty-six percent of the stream mileage occurs on BLM land and BLM lands are generally more accessible than private land, so most of these 5,100 angler days probably occurred on public land. Lake or reservoir fishing provides approximately 60,000 angler days, of which only 4 percent occurs on BLM land.

The Ruby Marshes, administered by the U.S. Fish and Wildlife Service, is the most important source of fishing in the Wells RA. The total fishing activity in 1980 in the resource area amounted to an estimated 65,100 days, which would account for \$1,726,452 in expenditures, \$511,030 of income, and 72 full-time employees that depend on fishing-related employment within the resource area.

Economic Analysis-Regional

Estimated 1980 state hunting totals indicate hunters spent \$17,911,551 during 605,230 hunter days. Therefore, the Wells RA contributed about 9 percent of the hunting expenditures in the state.

Estimated 1980 state fisherman days indicate \$37,882,839 in expenditures for 2,461,523 days. Therefore, the resource area contributed about 4.6 percent of the angler-day expenditures in the state.

The National Travel Survey estimated that there were 1,290,000 person-nights of visitation spent in Nevada in 1977 by persons travelling to destinations in the state for the primary purpose of outdoor recreation. Table 3-8 compares this to other states and the nation.

TABLE 3-7

ECONOMIC IMPACTS-HUNTER DAYS IN ELKO COUNTY-1979 & 1980

Activity	Hunter Days ¹		Expenditures Per Day ²		Total Expenditures		Income ³		Employment ⁴	
	1979	1980	1979	1980	1979	1980	1979	1980	1979	1980
Waterfowl										
Ducks	3240	3511	\$35.61	\$40.42	\$115,376	\$141,915	\$34,151	\$42,007	4.84	5.95
Dark Geese	3240	3511	\$35.61	\$40.42	115,376	141,915	34,151	42,007	4.84	5.95
White Geese	3240	3511	35.61	40.42	115,376	141,915	34,151	42,007	4.84	5.95
Coot	40	389	35.61	40.42	1,424	15,723	421	4,654	.06	.66
Total	9760	10922	35.61	40.42	\$347,552	\$441,468	\$102,875	\$130,675	14.58	18.51
Upland Birds										
Quail	761	380	30.27	34.35	23,036	13,053	6,819	3,864	.97	.55
Pheasant	104	27	30.27	34.35	3,148	928	931	274	.13	.04
Dove	1094	1531	30.27	34.35	33,115	52,589	9,802	15,566	1.39	2.21
Sage Grouse	6549	4248	30.27	34.35	198,238	145,919	58,678	43,192	8.31	6.12
Blue Grouse	1281	1118	30.27	34.35	38,776	38,403	11,478	11,367	1.63	1.61
Chukar										
Partridge	7607	12216	30.27	34.35	230,264	419,620	68,158	124,208	9.65	17.59
Hungarian										
Partridge	1290	1863	30.27	34.35	39,048	63,994	11,558	18,942	1.64	2.68
Total	18686	21383	30.27	34.35	\$565,625	\$734,506	\$167,424	\$217,413	23.72	30.80
Upland Game										
Rabbits	4920	5886	29.83	33.85	146,764	199,241	43,442	58,975	6.15	8.35
Antelope*	----	75	----	29.18	----	2,189	----	648	----	.09
Deer Hunting*	----	27800	----	29.18	----	811,204	----	240,116	----	34

*Within the Wells Resource Area

¹Provided by the Nevada Department of Wildlife.²Provided by the U.S. Forest Service and "A Report on the Value of Wildlife" by Christopher Hansen, 1979.³Multipliers-Fillo (1978).⁴Multipliers-Fillo (1978).

TABLE 3-8
PER CAPITA OUTDOOR RECREATION VISITATION TO SELECTED REGIONS, 1977
1977-Person-Nights

Region	Traveled for Outdoor Recreation	1977 Population	Per Capita
United States	270,015,000	216,058,000	1.25
Far West	45,147,000	30,776,000	1.47
Nevada	1,290,000	633,000	2.04
California	24,481,000	21,891,000	1.12

Outdoor recreation-related expenditures by Nevada residents within the state contribute to the economy of Nevada in at least three distinct ways:

1. Residents make purchases for outdoor recreation-related goods and services in Nevada.
2. Residents acting as tourists travel within the state to participate in outdoor recreation, spending money for lodging, food, gasoline, and other items.
3. Residents pay entrance or user fees to participate in outdoor recreational activities or use public facilities in the state. Table 3-9 shows estimated expenditure amounts per person per day for outdoor recreationists in Nevada.

TABLE 3-9
ESTIMATED DAILY EXPENDITURES OF RESIDENT AND NON-RESIDENT OUTDOOR RECREATIONISTS IN NEVADA BY PRIMARY OUTDOOR ACTIVITY, 1979
(EXPENDITURES PER PERSON PER DAY, 1979)

Primary Activity	Residents	Non-Residents
Camping/backpacking	\$12	\$16
Hunting	\$35	\$60
Downhill skiing	\$25	\$55
Outdoor Recreation	N/A	\$40

From 1965 to 1977, outdoor recreation increased dramatically in Nevada. Then, in 1978, recreation expenditures began to fall slightly. There are apparently three reasons for this decrease.

1. Gasoline prices have risen significantly.
2. As the market became flooded (with prices remaining high), people shifted away from the purchases of new equipment to repair and servicing of existing equipment.

3. Real income of U.S. workers has declined since 1978.

Social Values and Public Attitudes-Local

Recreation in relation to public lands seems to mean hunting, fishing, and ORV use to most residents of the resource area. The great majority (90 percent) of the interviewees did not express criticism of or complaints against the recreational program in the area. Some 50 percent of the total sample offered suggestions regarding lands that have possible recreational potential. The remainder of the sample did not feel there was a need or did not care about any further recreational development. The suggestions for areas in the Wells RA with future development possibilities were as follows:

1. The O'Neil Basin
2. More entry sites into the Ruby Mountains
3. Crittenden Reservoir
4. Pilot Peak
5. Bishop Creek Reservoir
6. Tabor Creek
7. The North Fork of the Humboldt River
8. The Mary's River Basin
9. Additional facilities at Ruby Marshes
10. Granite Ridge near Jackpot
11. Texas Springs near Jackpot.
12. Little Goose Creek near Jackpot
13. Snow Lake
14. Springs near the city of Wells

(Note: There is not an ordered preference to the above suggestions, although Tabor Creek and Pilot Peak were mentioned more than once.)

Public comments expressed a preference for campgrounds, picnic tables, toilets, and garbage receptacles as the most appropriate recreational improvements.

There were a few individuals (10 percent) in the sample who expressed the view that the entire resource area is lacking in terms of recreational lands. The main reason they cited was the lack of water in Nevada (lakes & streams); water is usually associated with recreational development.

Some of the individuals (17 percent) of the sample expressed the concern that developed areas only bring in more people and pollute the area. They did not want to see public lands developed and were more interested in the wilderness type of experience.

Off-road vehicle (ORV) use restrictions were favored by a majority (90 percent) of interviewees. It was stated that ORV operators damage and scar the land. Snowmobiles, 4-wheel drives, and motorbikes were mentioned as

vehicles that needed to be restricted by limiting them to specific areas or roads. It was also stated that, in this dry climate and fragile environment, ORV use causes a lot of damage, with a long period of time required for the replacement of vegetation. One individual suggested that certain areas should be made "sacrifice" areas (or designated use areas). He said that he would rather see two hills around town scarred that two hundred.

There were a few interviewees (10 percent) that did not want any restrictions on ORV use. One said that "it would just be more government regulation." A mining executive stated that his industry needed to get off the roads and trails for exploration purposes. He did not think that miners destroyed much with off-road use except to start a few fires, but he said BLM employees also start fires on occasion.

Social Values and Public Attitudes-Regional and National

National trends in outdoor recreation have been influenced by an increase in leisure time; a decline in "baby-boom" offspring; an increase in demand by, and opportunities for, the elderly; a decline in real income; costs and supplies of fuel; and the physical fitness movement. The effects of these factors are not well defined and are taking place at different time intervals. This makes it difficult to predict future trends. It can probably be predicted that because of declines in real income and the high cost of fuel, outdoor recreation will occur closer to home and involve less expensive pursuits, with decreases in such things as large RV use and snowmobiling.

For Nevada, the future of outdoor recreation looks bright. The population of Nevada has been growing rapidly and is predicted to continue growing. In addition, large population centers in California and Utah are still growing, creating a demand for outdoor recreation near the Nevada border and beyond. Outdoor recreation opportunities and facilities are becoming overcrowded, particularly in California. Nevada is the logical choice to receive a portion of the overflow.

RECREATION (SPECIAL MANAGEMENT)
SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT

The benefits derived from outdoor recreation in the Wells RA are numerous. Recreationists expend large sums of money yearly (see table 5), which contributes to the local economy. The unpopulated, rural character of Elko County continues to attract nonresident recreationists to the area to hunt, fish, and camp. Aesthetically, the county contains miles of wide-open spaces that generally offer unrestricted access to the user.

Many people moving to Elko County are from major metropolitan areas and are bringing with them a more diverse background in recreational activities. These people will typically lean toward more intensive or facility-oriented activities than the current Elko County populace. They will be interested in ORV use, motorboating, sailing, float-boating, developed camping with recreational vehicles, and other similar activities.

Some facility development (i.e., sanitation facilities, tables, signs) will be necessary in the future to adequately meet recreation demands, protect the resource, and provide for public health and safety.

Developed facilities at the Ruby Marsh campground are over 13 years old and beginning to deteriorate. If visitation increases above the current 50 to 60 percent occupancy rate, the campground will experience severe garbage disposal problems as well as some resource and facility damage.

Of the potential recreation management areas listed in table 3-5, only half contain any public recreation facilities. Sanitation problems occurring in some of these areas will continue to increase as visitation increases.

WILDLIFE HABITAT EXISTING SITUATION

Current Management Requirements and Constraints

Congress has recognized through FLPMA and the Public Rangelands Improvement Act of 1978 (PRIA) that some segments of public rangelands are producing less than their potential for wildlife habitat. FLPMA requires that the Bureau protect, preserve, and maintain certain wildlife habitat in its natural condition and provide food and habitat for fish and wildlife on the basis of multiple use and sustained yield (FLPMA, 1976, PL94-579 Section 102 (7) & (8), Section 103(c)). PRIA authorizes funding for the betterment of wildlife habitat.

The Endangered Species Act (ESA) was enacted to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved (ESA, 1973 PL 93-205 Section 2(b)). Section 7 of the ESA requires management agencies to consult with the Fish and Wildlife Service on any proposed action which may impact a species on the Federal Threatened and Endangered (T & E) list. Other laws requiring special management consideration for T & E species are the Fish and Wildlife Act of 1956, as amended; the Fish and Wildlife Coordination Act, as amended (16 USC 661-667e); the Migratory Bird Conservation Act of 1929, as amended (16 USC 715); the Land and Water Conservation Fund Act of 1965; and the Sikes Act of 1960, as amended (PL 93-452, 16 USC 670 G).

Bureau policy and guidance establish that any state listed species or sensitive species must receive the same consideration as a federally listed species (Bureau Manuals 6840 and 6602, WO Inst. Memo 80-141, and NSO Inst. Memo 78-130).

As far as can be determined without extensive research, the Bureau's wildlife program and policies are consistent with the policies, plans, and programs of other agencies.

One possible constraint or influence on the wildlife program involves local political considerations. The local community generally does not understand that much of the fish and wildlife in this area is being substantially limited by deteriorated habitat and that recreation and its associated economic benefits may also be adversely impacted. Ranchers, miners, and other segments of the local community may, therefore, tend to initially oppose some wildlife management proposals if they perceive that the proposals might restrict them.

Description of Environment

Big Game Populations

Mule deer and pronghorn antelope occur throughout the Wells RA. Elk occur in an area common to both planning units. Presently, bighorn sheep do not occur on BLM lands within the resource area.

The following big game information was provided, in part, by the Nevada Department of Wildlife (NDOW).

Contact Planning Unit. The 1981 mule deer population is estimated at 17,634 individuals. In general, population estimates are down from 1980. The Contact population represents 13 percent of the total state population estimate of 135,313 individuals. Summer ranges are rated in fair to good condition. Winter ranges are rated in fair to poor condition; livestock competition and habitat reduction are cited as primary reasons.

The 1981 pronghorn antelope population is estimated at 434 individuals. In general, population estimates are up from 1980. The total state population estimate is unavailable. Summer ranges are rated from fair to poor. Winter ranges are rated poor; livestock competition and habitat reduction, particularly meadows, are cited as primary reasons.

Elk are discussed in the following section dealing with the Currie Planning Unit.

Currie Planning Unit. The 1981 mule deer population is estimated at 21,106 individuals. In general, population estimates are up from 1980. The Currie population represents 16 percent of the total state population estimate. Summer ranges are rated in good condition. Winter ranges are rated in fair to poor condition; livestock competition and habitat reduction resulting mostly from mining activities and fire are cited as primary reasons.

The 1981 pronghorn antelope population is estimated at 338 individuals. In general, population estimates are up from 1980, with numbers apparently holding at a fairly high level. Yearlong ranges are rated in fair to poor condition; livestock competition and habitat destruction, particularly by horses, are cited as primary reasons.

Elk are found only in the Pilot Peak Mountain Range north of Wendover, Nevada. The 1981 population estimate for the planning unit and the state is unavailable. An aerial survey this year identified 27 individuals, but tree cover prohibited an accurate count. Presently, the herd appears to be increasing in size. The lower elevation range is rated in poor condition; livestock competition is cited as the primary reason. The higher elevation range is rated in good condition.

Seasonal and Important Use Areas

Big game overlays show spatial relationships for critical and noncritical ranges. Table 3-10 summarizes critical habitat acreage requirements.

Mule Deer. The most critical time of the year for deer is fall and winter, especially winter. The two factors which are primarily responsible for critical winter conditions are (1) forage of inadequate nutritional quality and quantity and (2) snow, which limits the amount of accessible winter range. These factors determine the carrying capacity of the winter range.

During the fall, succulents and browse are utilized for body conditioning and fat storage prior to winter. This season is especially important for obtaining quality forage if the winter range is small or poor in production.

TABLE 3-10
HABITAT ACREAGE REQUIREMENTS

Planning Unit	Species	Season	Critical Acreage	Total Acreage
CONTACT	Mule deer	Winter	23,100	53,800
		Summer	115,200	115,200
	Pronghorn Antelope	Winter	0	0
		Summer	0	0
	Elk	Yearlong	4,800	4,800
	Sage Grouse	Winter*	32,200	32,200
		Summer**	202,300	202,300
	Peregrine Falcon	Yearlong	116,000	116,000
CURRIE	Mule deer	Winter	118,100	222,700
		Summer	0	0
	Pronghorn Antelope	Yearlong	90,000	484,500
	Elk	Yearlong	14,400	14,400
	Sage Grouse	Winter*	11,600	11,600
		Summer**	75,200	75,200
	Peregrine Falcon	Yearlong	70,000	70,000
	Bald Eagle	Winter	192,000	192,000

*Includes critical strutting ground habitat with the assumption 1 strutting ground=lac.

**Includes critical nesting and brooding habitat.

During the winter, browse species are utilized for body maintenance. Critical deer winter habitat includes bitterbrush, mountain mahogany, snowberry, or serviceberry browse species. Currently, critical deer winter ranges on public land can support only 46 percent of the estimated numbers of deer in the resource area (Contact Unit 14 percent and Currie Unit 32 percent). Forest Service and private lands also provide some critical deer winter range.

Currently, winter ranges are rated in poor condition, with livestock competition for essential winter forage being well documented. Browse habitat conversion to a grass/forb community to facilitate livestock grazing and mining activities contribute to browse eradication. Based on these facts, the trend for deer winter habitat is downward. However, the milder winter conditions for the past several years have contributed significantly to adult and fawn survival and, consequently, a reduced winter mortality rate.

Late spring and summer are also important seasons for deer. During the spring, succulent species, especially forbs and grasses, are utilized to build up body condition and for fetus production.

During the summer, succulent species, especially forbs and grasses, are utilized for lactating females and general body conditioning. Critical deer summer habitat includes chokecherry, bitterbrush, serviceberry, and wild rose browse species; a variety of forbs such as clover, dandelion, horsemints, and penstemons; and a few grasses such as streambank wheatgrass and bluegrass. Currently, critical deer summer range on public lands can support 7.7 percent of the estimated numbers of deer in the resource area (Contact Unit 7.2 percent and Currie Unit 0.5 percent). U.S. Forest Service lands provide most critical deer summer habitat in the region. An abundance of high quality food on the summer range is needed by lactating does and enhances fawn survival.

High fawn production and survival to early winter are good indicators of adequate summer range. Overall, fawn production was down according to 1980-81 data. However, this resulted not from deteriorating summer range but from the presence of large numbers of nonproducing yearling does and low producing, young adult does.

Currently, summer ranges are rated from fair to good and appear to be highly productive. However, livestock competition, especially at meadow sites, continues to be a problem in the Contact Planning Unit. The trend for deer summer habitat appears to range from static to upward.

Stands of aspen trees are quite important in the summer range. These stands, whether large or small, provide food and, more importantly, shelter for fawning, bedding, and concealment. Current grazing practices, especially in the Contact Unit, are causing considerable pressure on these stands. As a result, overgrazing, especially the utilization of young, tender aspen seedlings and other forage species, is evident. If this trend continues, the future of aspen stands is uncertain.

Water can be a limiting factor for deer survival. Springs, seeps, small wet meadows, small natural ponds, and small groups of trees (riparian) are

therefore important in summer range. These areas provide adequate water and forage during normal moisture years. In drought years, though, deer and livestock alike congregate at available water sources. Trampling and habitat destruction are the results. These areas must be protected to allow habitat rehabilitation. Spring development will contribute to achieving this goal.

Currently, 61 percent of the seeps, 55 percent of the cold springs, 52 percent of the small wet meadows, 34 percent of the small natural ponds, and 33 percent of the small groups of trees (riparian) inventoried are in less than good condition (table 3-11). Effective livestock distribution and monitoring must be established and maintained if the Bureau is to protect these and all important wildlife use areas and consequently upgrade the quality of these areas to a good or better condition rating.

Antelope. Winter seasonal information, forage, and climatic factors listed above for deer also apply to antelope. During the winter, browse species, especially big sagebrush, and available forbs are the primary body maintenance foods. Livestock also utilize big sagebrush in winter, but to a lesser extent than bitterbrush. Therefore, forage competition is less severe for antelope than for deer. Sheep competition on the winter range is an exception.

TABLE 3-11

TERRESTRIAL WILDLIFE INVENTORY DATA (1979-81):

WETLAND/RIPARIAN SPECIAL HABITAT FEATURES-CONDITION CLASS SUMMARY

SPECIAL HABITAT FEATURES	CONDITION CLASS (CC)	TOTAL # FEATURES/CC	ACRES	PERCENT FEATURES IN CC	PERCENT ACRES IN CC
SEEP	0	0	0	0	0
	1	12	.34	10.6	2.0
	2	26	2.4	23.0	14.4
	3	37	6.52	32.7	39.0
	4	32	7.04	28.3	42.2
	5	0	0	0	0
	U	6	0.41	5.3	2.5
		113	16.7		
COLD SPRINGS	0	7	0.54	0.98	0.72
	1	83	6.19	11.69	8.26
	2	186	17.13	26.19	22.8
	3	208	26.42	29.29	35.27
	4	180	20.57	25.35	27.46
	5	4	0.23	0.56	0.3
	U	42	3.84	5.91	5.13
		710	74.9		
SMALL WET MEADOW (<2ac)	0	2	.35	0.39	0.09
	1	46	17.48	9.18	4.64
	2	135	115.78	26.9	30.74
	3	154	128.3	30.7	34.06
	4	98	60.15	19.56	15.9
	5	10	1.67	1.9	0.4
	U	56	52.93	11.17	14.05
		501	376.66		
SMALL NATURAL POND	0	0	0	0	0
	1	9	1.70	31.0	5.5

	2	6	1.56	20.7	5.0
	3	7	23.1	24.1	74.3
	4	3	1.85	10.3	5.9
	5	0	0	---	---
	U	5	2.9	17.2	9.3
		<u>29</u>	<u>31.1</u>		
SMALL GROUP OF TREES (RIPARIAN)	0	9	2.27	3.35	0.1
	1	22	226.4	8.21	9.6
	2	86	824.8	32.1	34.9
	3	72	471.7	26.9	19.97
	4	17	152.0	6.3	6.4
	5	2	0.6	0.7	0.02
	U	60	496.24	22.4	21.0
		<u>268</u>	<u>2361.29</u>		
HOT SPRING	0	0	0	---	---
	1	2	10.01	28.6	98.6
	2	4	0.04	57.1	0.4
	3	0	0	---	---
	4	0	0	---	---
	5	0	0	---	---
	U	1	.1	14.3	0.98
		<u>7</u>	<u>10.15</u>		
DRY MEADOW	NONE CLASSIFIED	91	554.78	N/A	N/A

RIPARIAN HABITAT
CONDITION CLASS CLASSIFICATION

Class 0	- Lack of information
Class 1, Excellent	- No or negligible use/damage by livestock (consider rested pasture(s), very few cow patties; well rooted vegetation (mostly grasses, forbs, sedges, etc.); sod intact; very little, if any, erosion; less than 5 percent bare ground.
Class 2, Good	- Some use by livestock (consider utilization patterns, distance from useable waters/slope, etc.), cow patties present but cannot be seen from an oblique angle; vegetation generally well-rooted; sod mostly intact; some erosion; 6 to 15 percent bare ground.
Class 3, Fair	- Use or damage close to sod, cow patties noticeable, present, easily seen; vegetation shallow rooted, moderate erosion; 16 to 25 percent bare ground.
Class 4, Poor	Heavy to severe use/damage, cow patties equal or nearly equal to surface area of vegetation; vegetation generally grazed down to soil; considerable soils showing (over 25 percent) with - sod damage serious; active surface erosion.
Class 5, Man-Made	Created habitat; water/riparian habitat where there was none before project, i.e., wells, overflow reservoirs, etc.
Class U, Undetermined	No determination made of condition class rating.

Currently, winter ranges are rated in poor condition. The conversion of sagebrush communities to a grass type to facilitate livestock grazing is the critical reason. Winter ranges must have healthy, productive, diverse stands of low shrubs in mixed communities. The long-range trend forecast is poor if habitat conversion practices continue.

Summer seasonal information for deer also is applicable for antelope. Summer is marked by the highest diversity of plants in pronghorn diets.

Currently, summer ranges are rated in fair to poor condition. The increased invasion of halogeton, a noxious, poisonous plant, in preferred summer forage habitat areas and general habitat destruction by livestock, particularly horses, continues to plague the Currie Unit. Livestock competition is the primary problem in the Contact Unit.

Critical antelope yearlong habitat (winter and summer habitat not differentiated) includes big sagebrush, low sagebrush, black sagebrush, shadscale, spiny hopsage, and horsebrush as the main brush species; a variety of forbs; and a few grasses. Studies indicate sagebrush is utilized more during the winter, forbs more during the summer, and grasses lightly yearlong. Currently, critical yearlong habitat is rated in fair to poor condition.

The water sources identified for deer as important use areas also apply to antelope.

Kidding areas are other important use areas for antelope. Kidding areas are typically located within summer ranges or summer areas within yearlong ranges and occur within the broad valley floor areas of the resource area. Kidding cover is found in stands of sagebrush that have greater than average brush cover, total cover, and mean shrub height. Stands not meeting these criteria do not provide adequate concealment.

Elk. All yearlong elk habitat is critical habitat. As stated earlier, this habitat at the higher elevations is rated in good condition. Livestock grazing is primarily confined to the lower elevations and includes grazing by domestic sheep which winter along the foothills of the main peak and cattle which summer north of the peak.

Sage Grouse. Sage grouse are critically dependent upon sagebrush-covered lands in meeting their annual life requirements. The resource area is no exception. The greatest adverse influence on sage grouse is the destruction or adverse modification of their habitat. Estimated population and production data is available for Elko County but is not delineated for the Wells RA.

Strutting Ground Habitat. Strutting grounds may be located between summer and winter ranges, or, in some cases, the two ranges may be the same area. Strutting in the resource area occurs from late March to mid-May. The dominant shrub found on most grounds is low sagebrush. Commonly associated forbs include phlox, lomatium, and eriogonum; grasses include wheatgrass and squirreltail.

Vegetation on the strutting ground is significantly lower and less dense than surrounding vegetation. The average height of vegetation on strutting grounds is 9 inches and the average density is 25 percent. The majority of the grounds have an east aspect and a mean slope of 2.4 degrees. Big sagebrush, low sagebrush, and rabbitbrush are the most common shrubs found adjacent to grounds and are utilized for escape cover. Grounds are often located near water.

Currently, 180 active and nonactive strutting grounds are identified within the resource area--49 in the Currie Unit and 131 in the Contact Unit. The results of a 1980 strutting ground inventory, conducted March 3 to May 3, revealed that 68 grounds (38 percent) were active--49 in Contact and 19 in Currie.

Excluding complete destruction of the physical aspects of the strutting ground itself, generation after generation of grouse will utilize the same parcel of land for strutting. Studies show a noticeable decline in grouse population and breeding activities associated with the conversion of sagebrush to cropland. Human disturbance is also detrimental to strutting grounds because (1) the habitat itself is disturbed and (2) grouse flushed from the ground usually do not return for several hours.

Currently, information on the range condition of strutting habitat is unavailable.

Nesting Habitat. Nesting sites are usually located within 2 miles of a strutting ground. Preferred sites include sagebrush of medium density, with vegetation height ranging from 7 to 31 inches. Most nests are usually located under the tallest bushes available for concealment.

Nests are highly susceptible to trampling, and nesting hens are easily disturbed. Livestock grazing, particularly by domestic sheep, can create a serious impact to nest sites. Grazing activities can cause nest destruction and nest desertion, the latter in unincubated stages or in early stages of incubation. Nest desertion is less frequent after incubation is well underway. The impacts on nest sites by human disturbance are probably the same as livestock grazing, but to a lesser degree. Data are currently insufficient for proper analysis in the resource area.

Currently, information on the range condition of nesting habitat is unavailable.

Brooding Habitat. Sagebrush stands of moderate densities are an essential part of brooding habitat, particularly during early and late summer. Forbs are the critical dietary requirement, particularly common dandelion (Taraxacum officinale), common salsify (Tragopogon dubius), and western yarrow (Achillea lanulosa). Grouse will migrate in elevation in response to forb maturation, with common areas including mesic sites such as meadows.

The diet of young sage grouse chicks (4-8 weeks old) consists of approximately 75 percent forbs and 15 percent sagebrush leaves. Adult birds also shift their diets to forbs prior to brood hatching.

Livestock grazing and consequent trampling on meadows creates a substantial impact to sage grouse and the habitat. The competition for forbs is greatly increased and hoof prints collect water and present a drowning hazard for young chicks. This demand on meadow and similar mesic environments promotes resource damage.

Free water is considered a critical component of sage grouse habitat. During the summer and fall, grouse are normally limited to streams, springs, seeps, small natural ponds, and small wet meadows. Grouse apparently do not require open water for day-to-day survival, but they do utilize it when available and attain their highest population densities in those areas exhibiting abundant and well-distributed surface water.

Currently, these mesic areas, especially meadows, are in less than good condition and exhibit accelerated resource damage throughout the resource area (table 1).

Winter Habitat. Winter habitat is critical for sage grouse, for they live almost exclusively on sagebrush leaves, showing a preference for low sagebrush when it is available. Snow and snow depths greatly affect the winter activities of sage grouse. It appears to be a major factor in determining the actual wintering site for a flock. Deep snow limits the availability of food.

Livestock grazing creates a negative impact on winter grouse habitat. Forage competition and heavy utilization may leave inadequate forage for grouse. Currently, winter sage grouse habitat is rated in fair to poor condition.

Birds of Prey Nesting Habitat. Birds of prey, or raptors (hawks, eagles, owls, etc.), utilize three primary special habitat features for nesting habitat in the resource area: trees, cliffs, and rock outcrops. Twenty-three different species of raptors are known to nest in Nevada; 14 of these species have been positively identified to be nesting, or are strongly suspected to be nesting, within the area. Seven additional species have been identified in the area, but their nesting status on public land is unknown.

NDOW information reveals that the majority of ferruginous hawks that nest in Nevada occur in Elko, Eureka, and White Pine counties. Of the 131 nest sites within these counties, BLM has identified 32 within the resource area. This species is extremely sensitive to physical disturbance near the nest site and will readily abandon the nest either temporarily or totally, depending upon the degree and intensity of the disturbance. The eggs or young cannot tolerate prolonged absence of the adult.

NDOW states that approximately 30 Swainson's hawk nest sites exist within the state; 16 occur in Elko County. BLM identified 2 sites in the resource area, both in the Contact Unit. This species exhibits sensitivities to physical disturbance similar to the ferruginous hawk.

NDOW has identified 130 Goshawk nest sites statewide; 48 of these sites are in Elko County. BLM has not identified any sites within the resource area, but four Goshawks have been observed at different times and locations in the area during the nesting season. This species nests in riparian areas in several

types of trees, including aspen. It is more sensitive to habitat destruction than physical disturbance. The current status of riparian areas within the area has already been discussed.

Although some species are more sensitive to one type of disturbance, this does not preclude a sensitivity to another type.

Information on nesting phenology, territorial requirements, and management recommendations is presented in the Opportunity Analysis section.

Threatened, Endangered, and Sensitive Animal Species. One threatened and endangered animal species occurs in the Wells RA--the bald eagle. In addition, peregrine falcons and big horn sheep (a sensitive species) inhabited the resource area in the past.

Bald Eagles. It is difficult to determine habitat requirements for migratory avian species due to their basically unrestricted, highly mobile lifestyle and behavior patterns. However, a 1979-80 wintering bald eagle inventory, supported by a thorough literature review, identified a minimum of 300 square miles (192,000 acres) as essential and critical wintering habitat. Presently, this habitat is primarily in the Currie Planning Unit.

This species utilizes the broad and flat Antelope, Butte, and Ruby valleys for hunting, feeding, and roosting. Basic vegetation composition consists of:

1. Antelope: shadscale and greasewood, with local areas of winterfat and scattered big sagebrush
2. Northern Butte: big sagebrush--winterfat and scattered juniper
3. Central and Southern Butte: big sagebrush-rubber rabbitbrush, wet meadows of Juncus spp., Carex spp., and grass
4. Northern Ruby: big sagebrush, crested wheatgrass, and pasture-wet meadow (including Salix spp.)
5. Central Ruby: big sagebrush, rubber rabbitbrush, and crested wheatgrass
6. Southern Ruby (Ruby Lake National Wildlife Refuge): fresh marsh-wet meadow

A 1980-81 wintering bald eagle inventory identified two communal roosting sites, the first such identifications in the resource area and the entire district. These sites must be considered ultracritical habitat. The vegetation at one site on public land consists primarily of pinyon-juniper, with an understory of snowberry, curlleaf mountain mahogany, and sparse forbs and grasses. The vegetation at the other site, which is on private, fenced land, consists primarily of narrowleaf cottonwood, forbs, and grasses.

The aforementioned critical habitat must be considered the minimum size necessary to manage and protect in order to gain further knowledge about the ecology of wintering bald eagles.

Peregrine Falcons. A 1980-81 peregrine falcon habitat inventory, supported by a thorough literature review, identified a minimum of 291 square miles (186,000 acres) as essential and critical habitat. Presently, 62 percent (116,000 acres) of this habitat occurs in the Contact Planning Unit, with the remaining 38 percent (70,000 acres) occurring in the Currie Planning Unit.

This species utilize broad, flat valleys, specifically Tecoma and Blue Lake, and a major river drainage, the North Fork of the Humboldt, for hunting, feeding, and nesting. Basic vegetation composition consists of : (1) northern Tecoma Valley: greasewood, green rabbitbrush, and isolated, small riparian areas containing a variety of forbs and grasses; (2) southern Tecoma Valley: black sagebrush and Indian ricegrass; (3) Blue Lake area (south of Wendover, NV): horsebrush, shadscale, and low sagebrush on drier, nonsaline soils and greasewood, saltgrass, and halogeton on more saline soils; and (4) North Fork of the Humboldt River: big sagebrush and green rabbitbrush and riparian areas containing wildrose, currant, and Juncus spp.

The above critical habitat must be considered the minimum size necessary for management and protection to gain further knowledge about peregrine falcon ecology.

Big Horn Sheep. Historically, this state listed sensitive species inhabited three areas within the resource area: the Pilot Peak Range, the Goshute Mountains, and the Bad Lands. In 1980 NDOW conducted a study of all historic sheep sites within the state, including the above sites, and assigned a priority rating for potential reintroduction (1=highest and 16=lowest). The results were: Pilot Peak, 3; Bad Lands, 4; and Goshutes, 16. Currently, NDOW has no plans for reintroductions into these areas.

In 1981 BLM conducted a study in these same areas for comparison with NDOW information. The results were: Pilot Peak, not evaluated; Goshutes, fair to poor; and Bad Lands, good.

Significant Habitat Hazards and Conflicts

Fencing that does not conform to Bureau specifications is the primary wildlife hazard throughout the resource area. Deer and antelope are the two species most affected.

Fences on mule deer range should not exceed 42 inches in total height from the ground to the top wire, with at least a 12-inch space between the top two wires to prevent leg twisting. Deer can negotiate a 48-inch high fence, but a fence of this height placed on hillsides would represent a tremendous movement barrier to healthy and unhealthy deer alike.

A 42-inch high fence on land with 0 percent slope is 42 inches high. This same fence on land with 30 percent slope represents a 62-inch barrier and, on a 50 percent slope, a 75-inch barrier. It is not uncommon to observe deer foraging on summer ranges on slopes of 25 percent slope and greater. On winter ranges, deer in a weakened condition because of harsh climatic conditions or a lack of forage, or both, would experience extreme difficulty in negotiating any fence that exceeded 42 inches in total height.

A 42-inch fence allows unrestricted deer movement and contains livestock. Several fences in the resource area, particularly the Contact Planning Unit, do not conform to this specification.

Fences on antelope range should not exceed 38 inches total height from the ground to the top wire. The bottom wire should be smooth and at least 16 inches above the ground. Antelope will usually pass under, rather than over, a fence. Wovenwire, sheep-proof fences represent the greatest hazard to antelope by restricting movement and prohibiting passage under the fence.

Several fences in the resource area do not meet these specifications or are of the wovenwire type. A controversy exists concerning the effectiveness of a 38-inch fence in adequately containing livestock.

Information documenting deer and antelope losses or major changes in migratory route patterns because of incorrectly constructed fences is available from the Wells RA wildlife biologist. Unless fences are initially built to, or corrected to meet, current specifications and guidelines, additional losses and migration changes can be expected.

Secondary wildlife hazards within the resource area include (1) water troughs constructed too high to benefit deer fawns and antelope kids and (2) a lack of escape devices in water facilities to benefit birds and small mammals.

The results of studies show that immature wild ungulates, such as deer fawns and antelope kids, experience great difficulty in attempting to drink from any water trough exceeding 20 inches total height from ground level. An additional hazard, that of entrapment and drowning, is present if a fawn or kid should inadvertently find itself in a trough with a water level exceeding 20 inches total depth. The trough height should be a primary management consideration in placing new, or modifying existing, troughs in identified deer fawning and antelope kidding areas. The placing of rocks, concrete blocks, or other ramp facilities in troughs provides an escape route where the water depth exceeds 20 inches.

Regardless of the total watering device height, small mammals and birds occasionally become trapped and drown in such devices without adequate escape facilities. A decaying, deteriorating carcass reduces water quality for wildlife and livestock.

The drowning hazard can be reduced by placing floats, ramps, or ladders in watering devices to provide an avenue of escape. Numerous water devices within the resource area do not provide for the elimination of these identified secondary hazards.

The primary habitat conflict between wildlife and livestock is the trampling of water sources, particularly cold springs and small wet meadows, by livestock. This practice reduces the quality and quantity of both water and vegetation by creating a hummock effect on the soil and destroying valuable forage.

Sage grouse, in particular, are greatly affected by this practice since they depend heavily upon meadows for their forage needs. Trampling creates deep hoof prints that collect water and present a drowning hazard for sage grouse chicks.

Currently, 55 percent of the cold springs and 52 percent of the small wet meadows inventoried within the resource area are in less than good condition and badly trampled by livestock, particularly in the Contact Unit (table 1). Habitat improvements, such as fencing of these water sources, is a solution to allow these and other similar sources exhibiting accelerated resource damage to recover.

Aquatic Habitat and Fish Populations

Aquatic inventories were conducted during 1979 and 1980 on all streams known or suspected to have fish populations. The inventory conformed to procedures in the Nevada State Office Supplement (Release NSO 6-38, dated 1/25/78) to BLM Manual 6671. Both public and private segments were inventoried to provide overall information about each stream and its watershed.

Stream inventory results indicate that, of the 452 miles inventoried, 51.1 percent are privately owned and 48.9 percent are publicly (BLM) administered. Habitat condition was rated poor on 66.7 percent of the 45 streams and fair on 20 percent. Only 13.3 percent of the streams were in good or excellent condition.

Fish Populations. Trout populations were present in 35 of the 45 streams inventoried (table 3-12). Relict (Steptoe) dace were in 2 streams and 6 other streams also contained only nongame fishes. No fish were located in 2 of the streams. Game fish occupied a total of 282 miles of stream, of which 58 miles were in publicly (BLM) administered segments.

TABLE 3-12
FISH SPECIES PRESENT IN INVENTORIED STREAMS

OVERALL	
Fish Species	No. Streams
Trout	35
Other nongame fishes	6
Relict (Steptoe) dace	2
No fish	2
TROUT	
Species	No. Streams
Rainbow only	16
Lahontan cutthroat only	7
Rainbow and brown	3
Rainbow and brook	2
Yellowstone cutthroat only	2
Rainbow and Lahontan cutthroat	1
Rainbow, Lahontan cutthroat, and brook	1
Rainbow, Lahontan cutthroat, brook, and brown	1
Brown only	1
Redband only	1

Threatened, Endangered, and Sensitive Species. Lahontan cutthroat trout (Salmo clarki henshawi), listed as threatened on the Federal list, occupy 10 streams. Nine of these streams are in the Marys River drainage, while one stream, the West Fork of Deer Creek, is in the Salmon Falls River drainage.

A total of 54.3 miles of stream, of which 27.8 miles are publicly (BLM) administered, were inhabited by these cutthroat trout. This 54.3 miles represents 43.5 percent of the total Lahontan cutthroat habitat within the Elko District.

Five of the 10 streams were in poor habitat condition and 4 were rated fair; only 1 was in good condition. Individual inventory reports and the "Status Report on Lahontan Cutthroat Trout within the Elko District, BLM, December, 1980," provide much more detailed information on the cutthroat.

Redband trout, Salmo newberryi, (as described by Behnke 1979) are considered a sensitive species by the Nevada Department of Wildlife and are present in one stream. This species is closely related to rainbow trout. It was introduced into Trout Creek near Jackpot, Nevada, in 1977 from Chino Creek in the Elko Resource Area. Trout Creek, Chino Creek, and Winters Creek (Elko RA) are the only streams in Nevada known to contain populations of redband trout. Nevada redband trout are unique in that they have tolerated water temperatures up to 85 degrees F.

Relict (Steptoe) dace (Relictus solitarius) is also listed as a sensitive species by Nevada. Its distribution is limited to several valleys in Elko and White Pine counties. The 1980 BLM aquatic inventory sampled historical sites and other suspected sites in Elko County. Of the 11 historical relict dace sites within ELko District, only 4 were documented as still containing dace. Access was denied to 2 sites, and 5 sites no longer contained dace.

Elimination of dace from these five sites was probably caused by a combination of introduced exotic fishes, alteration of water sources for stock watering, and heavy grazing of spring sources. One new site at Franklin Lake in Ruby Valley was discovered to contain relict dace.

Trout Species, Other Than T & E. Rainbow trout (Salmo gairdneri) occupied 17 streams plus 7 streams in combination with other trout species. Brown trout (Salmo trutta) were present in 1 stream, plus 3 streams in combination with other trout species. Brook trout (Salvelinus fontinalis) were in 3 streams in combination with other trout species.

Aquatic Habitat. Table 3-13 includes the habitat condition rating for each stream inventoried. The overall rating is based upon a percentage of optimum, optimum being the theoretically perfect condition, or 100 percent. The condition rating is classified as follows: Excellent, 70 percent and above; Good, 60 to 69 percent; Fair, 50 to 59 percent; and Poor, 49 percent and below.

Limiting Factors. The overall habitat condition (percentage of optimum) results from an average of values for five "Priority A" fish limiting factors. Each of these factors was rated poor or fair on at least some of the 45 streams inventoried -- pool-riffle ratio on 18 streams, pool quality on 44, stream bottom percent desirable materials on 23, bank vegetation cover on 41, and bank stability on 33.

"Priority B" limiting factors are not averaged in the overall rating but are significant in limiting fish populations. The stream widths and depths, for example, were found to have a mean ratio of 24:1, which indicates a wide and shallow stream channel with little living space for fish.

The amount of stream surface shaded averaged only 15 percent. The percentage of stream bottom with sedimentation (sand and silt) averaged 24 percent.

Habitat Conflicts. The analysis of limiting factors in each stream inventory report concluded that, in most cases, livestock grazing was primarily responsible for producing and maintaining the deteriorated habitat condition. These conclusions were substantiated by results of studies on the West Fork of Deer Creek and on Tabor Creek.

The impacts on streams from livestock grazing start in the watersheds. Source springs are often severely trampled, which can reduce flows and increase water temperatures. Heavy grazing of vegetation and trampling of wet meadows and upper stream channels may lower water tables in the watershed. Trampling and the reduction of vegetation and litter in other parts of the watershed can result in increased water runoff. As a result, the watershed often has a much reduced water storage capacity.

TABLE 3-13
SUMMARY OF STREAMS INVENTORIED

Water Name	Location	Land Status of Miles Inventoried		Land Status of Fishable Miles		Year Inventoried	Habitat Condition		Fish Species		Angler Days year ²	
		Private	Public	Private	Public		Percent of optimum	Rating	Game Species ¹	Nongame Present		
Contact P.U.												
Bear Creek	T47N R62E	2.1	2.1	2.1	2.1	1980	70.3	Excel	RT	X	5.8	
Bishop Creek	T39N R62E	0	3			1979	54.6	Fair		X	48.6	
Bull Camp Creek	T42N R63E	3.3	8.2	1.5	3.1	1980	56.5	Fair	RT		5.9	
Camp Creek	T44N R61E	6.9	9.1	6.9	9.1	1979	43.7	Poor	BRT,RT	X	135.6	
Canyon Creek	T45N R61E	5.5	12.9	5.5	12.9	1980	47.5	Poor	RT	X	559.8	
Chimney Creek	T43N R59E	0.5	5.0	0.4	3.3	1979	46.5	Poor	LCT	X	ND	
Conner Creek	T40N R59E	2.5	4.5	0.4	0.8	1979	61.4	Good	LCT		ND	
Cottonwood Cr. (O'Neil)	T44N R61E	3.0	15	3.0	13.0	1979	50.2	Fair	RT	X	113.1	
Cottonwood Cr. (Jackpot)	T47N R64E	5.9	9.1	3.0	9.1	1980	52.1	Fair	RT	X	ND	
Currant Cr.	T42N R60E	11.6	0.9	6.3	0.4	1979	47.8	Poor	BT,BRT,LCT RT	X	3.2	
Cutt Creek	T43N R58E	4.75	0.25	2.8	0.4	1979	40.1	Poor	LCT	X	ND	
Deer Creek E.	T43N R61E	1.3	3.2	0.5	3.0	1980	50.6	Fair	RT		ND	
Deer Cr. M	T43N R61E	3.8	2.4	2.0	2.4	1980	46.3	Poor	RT		ND	
Deer Creek W.	T43N R61E	.8	4.7	0.7	2.3	1977	52.4	Fair	BT, LCT, RT		ND	
Donner Creek	T37N R70E	.8	1.3			1980	78.0	Excel	LCT ³		ND	
Draw Creek	T43N R59E	.25	3.25	0.1	2.1	1979	40.0	Poor	LCT	X	ND	
Day Creek	T42N R62E	.9	1.3	1.0	1.9	1980	45.0	Poor	RT	X	49.3	
Goose Creek	T47N R70E	25	2.5	5.0	2.5	1980	56.2	Fair	Cut	X	260.2	
Hanks Creek	T41N R60E	6.5	12.5	2.7	11.2	1979	43.8	Poor	LCT	X	ND	
Hot Creek	T43N R60E	2	1.5			1979	31.2	Poor		X	ND	
Jakes Creek	T43N R62E	4	13.4	2.3	6.7	1980	73.2	Excel	RT	X	51.0	
Johnson Creek	T36N R63E	3.9	.5			1980	49.6	Poor		X	ND	

TABLE 3-13 (Cont'd)

Water Name	Location		Land Status of Miles Inventoried		Land Status of Fishable Miles		Year Inventoried	Habitat Condition		Fish Species		Angler Days year ²
			Private	Public	Private	Public		Percent of optimum	Rating	Game Species ¹	Nongame Present	
Little Goose Cr	T46N	R68E	4.9	2.8			1980	40.8	Poor		X	13.7
Marys River	T42N	R60E	13.5	5.5	9.4	5.1	1979	35.2	Poor	LCT, RT	X	259.2
Piney Creek	T47N	R68E	2.0	1.0	2.0	1.0	1980	42.9	Poor	BT, Cut	X	29.4
Pole Creek	T40N	R61E	5.8	2.2			1979	47.4	Poor		X	8.4
Pole Creek	T45N	R61E	.1	6	0.1	5.5	1980	53.2	Fair	RT	X	19.0
Salmon Falls Main & S. Fork	T47N	R64E	19.5	22.5	19.5	22.5	1979	43.7	Poor	BRT, RT	X	534.2
Salmon Falls N Fork	T45N	R62E	8.2	9.3	8.2	9.3	1980	68.1	Good	BRT, RT	X	558.6
Shack Creek	T47N	R62E	0.4	3.3	0.4	3.3	1980	51.9	Fair	RT	X	14.8
Shell Creek	T46N	R62E	1.9	5.5	0.8	2.7	1980	43.2	Poor	RT	X	ND
Shoshone Cr.	T47N	R64E	8.7	3.6	8.7	3.6	1980	42.6	Poor	BRT, RT	X	228.1
Sun Creek	T44N	R61E	10.4	5.6	8.4	1.2	1979	45.7	Poor	BT, RT	X	414.3
T Creek	T42N	R60E	10.75	6.25	2.5	2.0	1979	47.4	Poor	LCT, RT	X	34.4
Tabor Creek	T40N	R60E	12.0	4.5	5.2	4.1	1979	47.2	Poor	RT	X	1297.0
Trout Creek	T39N	R62E	3.1	0.4			1980	35.8	Poor			
Trout Creek	T45N	R65E	15.3	2.5			1980	40.09	Poor	Red		18.6
Trout Creek	T47N	R69E	4.0	3.5	4.0	3.7	1980	37.6	Poor	Cut	X	1.9
Wildcat Creek	T43N	R60E	5.5	0.5	1.2	0.2	1979	40.1	Poor	LCT	X	6.1
Willow Creek	T46N	R62E		2.0			1980	45.2	Poor			
Wilson/Lime Cr.	T46N	R62E	2.0	3.4	2.0	3.4	1980	65.5	Good	RT	X	338.3
Currie P.U.												50.5
McDermitt Cr.	T26N	R63E	3.3	2.2	3.3	2.2	1980	40.3	Poor	BR, RT		28.6
Odgers Cr.	T27N	R62E		10.0			1980	32.4	Poor		Relict Dace	
Phalen Cr.	T29N	R63E	2.0	0.1			1980	40.7	Poor		Relict Dace	

TABLE 3-13 (Cont'd)

Water Name	Location	Land Status of Miles Inventoried		Land Status of Fishable Miles		Year Inventoried	Habitat Condition		Fish Species		Angler Days year ²
		Private	Public	Private	Public		Percent of optimum	Rating	Game Species ¹	Nongame Present	
Taylor Cr.	T27N R62E	2.1	2.0	2.0	2.0	1980	49.0	Poor	RT		37.0
		230.9	221.4	123.9	158.1						5124.6

- ¹ BT=Brook Trout
 BRT=Brown Trout
 LCT=Lahonton Cutthroat Trout
 Cut=Cutthroat Trout
 RT=Rainbow Trout
 Red=Redband Trout
- ² Angler use is a 10-year average (1970-1979)
- ³ LCT only present in Utah portion of stream.

This produces higher peak stream flows in spring and less flow during summer. Higher flows increase flood damage, and the low summer flows reduce living space for fish and increase water temperatures.

The impacts on streams from livestock grazing are often most severe on the stream channels themselves. Because livestock tend to spend a large portion of their time along streams, a much higher percentage of riparian vegetation is consumed than vegetation in surrounding areas. In addition, the trampling effect on vegetation and streambanks is pronounced.

As a result, much of the riparian vegetation may be eliminated and streambanks become unstable. The unstable banks break down, resulting in streams which are wide and shallow with little living space or hiding cover for trout.

Sand and silt from erosion may cover the stream bottom, decreasing fish food production and smothering fish eggs in spawning areas. The large water surface without shade often results in high water temperatures in summer, too hot for trout survival. As with watershed impacts, water tables may be lowered, resulting in streams flowing shorter distances in summer or drying up earlier. The overall result of these impacts from livestock grazing on the stream channel and its watershed is that fish, particularly trout, are often reduced in numbers and size or even eliminated from some portions of streams.

Mining has a high potential for adverse impacts on stream habitat, but it was influencing only a few streams in the planning area during the inventory. The primary impacts cited in inventory report analyses were sediment contribution and riparian area disturbance caused by improperly constructed or poorly maintained mining roads. With the increase in mining activity in Elko County, the likelihood of impacts associated with chemical contamination and land surface disturbance increases.

Stream bottom areas are often favored for routing of roads, and most roads must cross streams at some points. The impacts are the same as those stated for roads in the mining section above. Inventory reports include examples and analyses of adverse effects from roads in other than mining areas.

Water diversions for agriculture and the associated channelization of streams were detrimental to fisheries habitat on many of the streams inventoried. Diversions often removed water from the main stream channel, which probably reduced fish populations downstream from that point. Diversion structures are also often barriers to fish migrations. Channelization associated with many of these diversions has destroyed fisheries habitat and riparian vegetation. Although much of this activity was on private land, some was on BLM-administered land.

One additional important habitat conflict is the ownership pattern on stream channels. Slightly over half of the stream miles inventoried are privately owned. Adverse impacts on private stream segments usually influence fisheries habitat conditions on BLM-administered segments and vice versa. Rehabilitation of public segments of stream habitat may not be fully possible without improvements on other segments.

WILDLIFE HABITAT
DEMAND FORECASTS AND DEPENDENCE

Nonconsumptive Needs

The aesthetic and scientific values associated with wildlife, and particularly with T & E species, tend to be intangible and defy application of monetary standards to define their worth. These values, nevertheless, are highly important. Even nonhunters and nonfishermen enjoy seeing fish and wildlife, and the outdoor experience, so important to Nevadans, would be greatly impoverished without them. It is probably not feasible to quantify how many fish or how much wildlife is required to adequately satisfy these needs. However, it seems safe to say that few people who enjoy the outdoors see as much of fish and wildlife as they would like.

Threatened and Endangered Species

Many people particularly enjoy observing the less common species of fish and wildlife, which increases the importance of T & E, rare, and sensitive species. These species are also of special interest to the scientific community. Other possible future values of these species cannot be predicted in advance, but extinction would certainly preclude them.

Bald Eagles

The bald eagle, our endangered National symbol, occurs only in North America. In the resource area, it occurs primarily in the Currie Planning Unit (see T & E overlay) and is visible from November through April. It is only a winter resident; it does not nest here.

In 1979-80, the wintering bald eagle population in the resource area represented 32 percent (17 of 54) of the Nevada population during a nationwide midwinter count; in 1980-81, it represented 15 percent (14 of 91). Although this population size is small compared to other states, it affords an excellent opportunity to observe and photograph this majestic bird of prey, an opportunity experienced by few people.

Peregrine Falcons

Historically, the peregrine falcon inhabited the resource area; presently, it does not. A 1980-81 peregrine falcon habitat inventory investigated and evaluated two historic and one potential site (see T & E overlay). The reintroduction of this currently endangered species into these sites would provide a rare opportunity to observe this bird of prey.

Deer

The total 1980 mule deer population in the resource area accounted for 29 percent of the total state population, and the total number harvested (3,978) represented 38 percent of the state's total harvest (10,447). Both the population and harvest data represent a fairly even distribution of deer between the two planning units.

Deer generally summer on Forest Service land, which lies within or borders the two planning units, and winter on BLM land. While the majority of harvest occurs on Forest Service land, quality hunting is also available on BLM land. The overall hunting success for the resource area in 1980 was 43 percent.

During 1980, nonresident hunters harvested an average of 13.3 percent of the deer, accounted for 13.4 percent of the hunter days, and enjoyed a 57 percent hunting success rate in the resource area. Resident hunters harvested an average 86.7 percent of the deer, accounted for 86.6 percent of the hunter days, and experienced a 41 percent hunting success rate (table 3-14). The total expenditure by all hunters, especially nonlocal, for lodging and supplies during the hunting season represents a tremendous short-term benefit to the local economy.

There is the additional value provided by the aesthetic quality of deer in their natural habitat for the hunter and nonhunter alike. Whether deer provide an economic or aesthetic benefit, or both, they must be considered an extremely important resource within the Wells RA.

Antelope

Antelope offer a unique challenge to the hunter and nonhunter alike. Their overall habitat is less rugged compared with deer, but the ratio of population to land area is considerably smaller than that of deer. Therefore, potentially more land must be covered to observe or harvest antelope.

Antelope hunters achieve a high total harvest percentage within the resource area--80 percent for the Contact Unit and 98 percent for the Currie Unit. The average antelope harvest for the resource area is 90 percent (table 3-15). Antelope hunting is closed to nonresidents.

Antelope hunting does generate increased revenues for the local economy, but the amount is considerably smaller than it is for deer hunting. Aesthetically, antelope offer an opportunity to observe one of nature's most graceful and fastest animals galloping across the western plains.

Elk

Currently, the value of elk can only be considered from an aesthetic rather than an economic point of view. Elk occur only in the Pilot Peak Mountain Range in the resource area. Nevada has never had an elk hunt on Pilot Peak, and no hunt is recommended until wild animals (born on the mountain) reach a viable population.

Pilot Peak is a rugged mountain rising over 10,000 feet. The elk population is probably less than 50 individuals, but observing these magnificent animals in a beautiful, diverse habitat is an aesthetic reward for many.

Bighorn Sheep

Historically, bighorn sheep occurred on BLM land within the resource area; presently, they do not. Studies are currently in progress to evaluate the feasibility of reintroducing sheep in the Goshute Mountains (Currie Unit), the Pilot Range (Contact and Currie units), and the Bad Lands Wilderness Study Area (Contact Unit).

Economically, the 1980 statewide high hunting demand (1,674 applications) and low tag quota (86) indicate that bighorn sheep were considered to be extremely desirable trophy animals. Only 5 percent of the total number of applicants were issued tags.

Locally, this same supply and demand trend could be expected. However, several variables associated with considering reintroduction do not presently allow accurate economic forecasts.

The primary immediate value of reintroducing sheep locally would be aesthetic. All three potential reintroduction sites would provide an unique opportunity to view these animals in a spectacular natural environment.

TABLE 3-14
1980 MULE DEER HUNTING DATA (GENERAL HUNT)

UNIT	Tag	Quota	Total	Harvest	Successful	Hunter	Days	Percent	
	R	NR	R	NV	Days/Hunter	R	NR	Hunter	Success
CONTACT									
7	3924	436	1502	228	4.5	6759	1026	38	52
8	628	69	314	51	5.1	1602	260	50	74
CURRIE									
10	3451	383	1503	229	4.6	6914	1053	44	60
12	405	44	128	23	4.9	627	113	32	52

R=Resident Hunter

NR=Nonresident Hunter

AVERAGE PERCENT SUCCESS (CONTACT P.U.)= 40% (Resident)
55% (Nonresident)
AVERAGE PERCENT SUCCESS (CURRIE P.U.)= 42% (Resident)
59% (Nonresident)
AVERAGE PERCENT SUCCESS (RESOURCE AREA)=41% (Resident)
57% (Nonresident)

TOTAL HUNTER DAYS=18354

TABLE 3-15
1980 PRONGHORN ANTELOPE HUNTING DATA (RIFLE ONLY)

Planning Unit	Tag Quota	Total Harvest	Successful Days/Hunter	Percent Hunter Success
<u>CONTACT</u>				
7C	10	8	2.5	80
7D	10	8	1.9	80
<u>CURRIE</u>				
10	10	10	1.5	100
11A	20	19	2.1	95

AVERAGE PERCENT SUCCESS (CONTACT P.U.)=80%
 AVERAGE PERCENT SUCCESS (CURRIE P.U.)=98%
 AVERAGE PERCENT SUCCESS (RESOURCE AREA)=89%

Existing Fishing Demand

Nevada Department of Wildlife questionnaire data shows that the 10-year average angler use on streams inventoried totaled 5,125 angler days per year within the planning area. This questionnaire data is only a gross indication of the actual use--some small fishing streams are not even on the list. It is not feasible to accurately separate out the use on public segments, but more use probably occurs on public lands due to easier access.

The angler use figures provide an estimate of the existing level of fishing effort on streams but this does not necessarily equal the degree of demand. The existing amount of "quality" stream fishing, i.e., larger fish or large numbers of catchable size fish, is very limited in the Wells RA and tends to be located in remote areas. If more fish, and particularly larger fish, were available in more streams, the fishing effort would undoubtedly be much higher. In other words, the current demand for quality stream fishing is probably not being met.

Tabor Creek provides an example where larger numbers of catchable size trout and easy access draws large amounts of fishing effort. The higher fishing success rate, in this case, is due partially to fish stocking. During 1970-1979, Tabor Creek received an estimated 25 percent of the total angler days for streams inventoried.

Most streams inventoried had deteriorated habitat and therefore supported fewer and smaller fish than they were capable of. Several of these streams have the potential to produce trophy size fish, and all of them are capable of producing more fish. Rehabilitation of these streams, therefore, would undoubtedly substantially increase the amount of fishing effort and come closer to satisfying demand.

Because stream fishing is limited in areas adjacent to the Wells RA, improved fishing would draw more fishermen from these areas. The associated economic benefits to the area would increase proportionately.

Projected Fishing Demand

Population levels within the planning area are projected to double in less than ten years. Because many fishermen come from outside the area, this population increase would not double fishing demand, but it certainly would substantially increase it. Since the existing demand for quality stream fishing is not being met, the increase in fishing effort would put increased pressure on the existing scarce resources, and proportionally even less of the demand would be satisfied. This further increases the need to expand and upgrade the stream fishing resource through stream rehabilitation.

Economic Analysis

Terrestrial

The Wells RA contains some of the most productive deer habitat in the state. The resource area accounted for 38 percent of the total deer harvest in the state in 1980. It also accounted for 42 percent of the nonresident hunters. The total deer hunter days amounted to approximately 27,800 days, which would account for \$811,204 in direct expenditures, \$240,116 of direct personal income, and 34 full-time employees who depend on deer hunting for employment in the Wells RA.

The Nevada Department of Wildlife identifies livestock use, pinyon-juniper encroachment, wild horses, and mining activity as principal factors affecting deer herds. All winter ranges are described as being in poor and deteriorating condition. Because of the importance of the area for deer, the district can expect more public attention than other areas receive. Hunting is perceived as an economic stimulus to the area and as a means of extending the summer tourist season.

Other important game species on public land include antelope, sage grouse, and Hungarian partridge.

Aquatic

Stream fishing in the Wells RA provides approximately 5,100 visitor days of recreation activity per year on private and BLM land. Fifty-six percent of fishable miles occur on BLM land, and proportionately more visitor use probably occurs on public lands because of easier access.

Lake or reservoir fishing provides approximately 60,000 visitor days, only 4 percent of which occurs on BLM land. Ruby Marshes, administered by the U.S. Forest Service, are the most important source of lake fishing.

The total fishing in 1980 in the resource area amounted to an estimated 65,100 visitor-days. This would account for \$1,726,452 in expenditures, \$511,030 of income, and 72 full-time employees who depend on fishing-related employment within the Wells RA.

Social Values and Public Attitudes-Local

The majority (30 out of 35, or 85 percent) of individuals interviewed thought that the range, for the most part, was not overgrazed and that the wildlife habitat was in good shape. Most interviewees (78 percent of those who commented and 80 percent of the ranchers) did not think that cattle competed for forage with other game such as deer or antelope. (Much of this thinking probably stems from the fact that Elko County has the best deer hunting in the state.) It was said that deer and antelope eat different types of forage, can get up high to forage where cattle cannot, and are much more intelligent in seeking forage.

Some people (9 out of 35, or 26 percent) felt that big game numbers in the area had declined. They had various views on the reason for this decline. The main reason given was hunter pressure. Others stated that dry years had taken a toll. One comment from a veteran rancher was that "there are many large areas on my ranch in which a cow never grazes and the wildlife are lacking there also." Thus, he attributed the decline in wildlife to hunter pressure. Another individual stated that "cattle grazing is not the problem, but rather the problem is a lack of range improvements. Water developments should be initiated so that cattle can be spread out on the range."

The ranching community (based on the social analysis interviews) generally felt that wildlife had a right to exist. However, they did not feel that wildlife forage needs should be put before cattle or sheep needs. They did not want to see their AUMs reduced so that wildlife numbers could be increased.

Multiple-use management was cited several times as an excellent management plan. One interviewee said that "if one manages for wildlife, they are also helping livestock. For instance, water developments and reseeding are beneficial to both."

Interviewees had various suggestions for increasing wildlife numbers. One was that other species could be introduced into the area, such as elk or bighorn sheep. Another suggestion was to improve the range instead of concentrating on game numbers--the game numbers are related to what the range can hold. There were also some individuals who recommended a cut in cattle grazing.

Management of Riparian and Stream Habitats

The great majority of interviewees thought that the riparian habitats and stream habitats were in good condition and that cattle did not affect this habitat significantly.

There were a few interviewees who thought cattle were detrimental to riparian and stream habitats in the area. One Indian from the Elko Indian Colony stated that cattle excrete a lot of harmful chemicals (which come from their feed) into the streams. A rancher admitted that some of the riparian habitat is in poor condition because of cattle grazing. He attributed this to bad management by some ranchers.

Nearly everyone who was interviewed thought that the fencing of streams to protect them from cattle was a bad idea. It was stated that upkeep of fencing would be a terrible expense and that fencing would be detrimental to big game. It was also said that fish planting should be done in lakes and reservoirs in the area instead of so much in streams, since streams dry up to practically nothing in summer.

Several people thought that better management was the answer and not fencing. One person stated that "cattle do not create that much of a problem on good fishing streams because they usually cannot penetrate the willows and brush. It is only when the brush and willows have been cleared away that will cause the stream to be affected." Another person thought that small dams and river projects, possible built by CETA kids or the like, could really improve the fishing habitat.

Yet another person noted that fencing would cause too much conflict between sportsmen and ranchers. It was also said that fencing a stream can have an adverse effect--as willows and grasses grow back, they soak up a lot of water and the length of the stream is reduced, especially in the summer. One rancher complained that if the streams were fenced, ranchers would not be allowed to ride up and down a stream to watch their cattle.

Threatened and Endangered Species

The great majority of individuals who were interviewed (32 out of 35, or 90 percent) were in favor of protecting species that are threatened and endangered. However, most also thought that, in many instances, these protection efforts have been excessive. A comment from an individual that typified many others was that "we have gone overboard in many instances--power plants have been partially constructed and then held up because of some insignificant species. Many of these species could be moved."

It appears that most of the individuals in the survey sample have tuned in to, and are highly aware of, some of the more publicized environmental incidents involving these species. These incidents--such as those involving the pup fish, the snail-darter, etc.--have shaped and slanted the views of most people. These individuals would like to see threatened and endangered species protected but only to a certain extent. They would not like to see progress stopped.

Some of the individuals who were interviewed had some criticism of the current list of threatened and endangered species. The Lahonton trout was mentioned by a couple of individuals as not qualifying for listing. A mine executive said that his company spent close to a million dollars to protect some Lahontan trout habitat. He further noted that all this money was spent to protect just 200 feet of Lahontan trout habitat. He said that millions of these trout are grown by the Forest Service and they are not an endangered species. Another negative comment, this one by a rancher's daughter, was that "unless a species has some worth, why protect it."

There were some in the survey sample who expressed the view that these species should be protected, but the protection program should be flexible and not

unbending. They stated that situations change and that certain species should be removed from the threatened and endangered list; "It should be monitored to see if a species should remain on the list."

All of the mine executives interviewed were in favor of protecting threatened and endangered species. Their view was that the mining industry is site specific and does not usually destroy large areas that would affect threatened and endangered species. It was noted that birds nest on mine tailings and wildlife grazes on reclaimed areas.

Social Values and Public Attitudes-Regional

In a statewide survey, the Governor's Commission of the Future of Nevada asked if state government regulation over the next 20 years should be greater, equal to, or less than currently exists in wildlife management. In Elko County, 44 percent of county respondents stated that state regulation should be greater, 34 percent said it should remain the same, and 23 percent felt it should be less.

In Lander County, 52 percent said that state government regulation in wildlife management should be greater, 30 percent that it should be the same, and 17 percent that it should be less over the next 20 years. Of the Eureka County respondents, 50 percent said state government regulation should be greater, 27 percent that it should remain the same, and 32 percent that it should be less. The overall feeling in the region seems to be that state regulation of wildlife needs to be increased.

WILDLIFE HABITAT
SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT

A primary management tool to provide and maintain quality wildlife is positive habitat management. If the habitat is lacking any or all of the essential habitat elements (food, water, cover, and space), wildlife is affected, usually negatively.

In general, the wildlife habitat in the resource area is in fair to poor condition. This has been the trend for at least the past 10 years, probably longer. The primary reasons are livestock competition and habitat reduction. Until adequate solutions to these problems are developed, this downward trend can only continue.

A portion of the 1979-81 terrestrial wildlife inventory data for the resource area indicates several important habitat features have already reached maximum use and are in less than good condition (table 1). Additional stress to these features can only increase the present accelerated resource damage to an irreparable point. This point may have already been reached.

Further data analysis is essential for proper and total habitat assessment. Until then, estimates of sustained levels of use and production are, at best, speculative.

Nevada Department of Wildlife (NDOW) data (1970-80) revealed that deer winter range in the resource area has ranged from fair to poor condition. The importance of winter range is discussed in an earlier section (Existing Situation). Pinyon-juniper encroachment, brush eradication projects, livestock competition, and mining activities were cited as primary reasons for the poor range condition; these reasons are still valid.

As a result, herd production and population generally exhibited a downward trend until about 1976. From 1976 to present, production and population levels have shown a slight upward trend, though range condition has not. Without good winter range, population mortality due to poor vegetation quality and quantity and general stress is imminent. In turn, poor overwinter herd composition and condition has a direct effect on hunting regulations and the quality of hunting the following year.

In general, the summer ranges have been, and continue to be, rated in good condition. This is encouraging, for it provides the conditions for fawn survival and subsequent recruitment into the herd and for restoring general health to the overall herd from overwinter stress.

Summer ranges account for approximately 60 percent (7 months) of total deer seasonal habitat. Until winter ranges are improved to a good or better condition, summer ranges cannot continue to be expected to support and correct the results of winter range deficiencies.

Similar conditions are present on other big game seasonal habitats. Until these conditions are corrected and improved, big game population and habitat trend will continue to be downward.

As outlined in the Demand section, the existing resources are not even meeting the existing demand for "quality" stream fishing. Some remote streams on both BLM and Forest Service administered lands could probably sustain a little higher level of use, but most fishermen have not been willing to expend the extra cost and effort to fish the remote streams. These streams would probably receive some increase in use with an increase in numbers of fishermen, but only by those willing to invest the extra cost and effort necessary.

The primary problem is that if stream habitat deterioration continues, even the existing level of fishing effort cannot be sustained. Continued existing management would produce a continued downward trend in habitat conditions, though further deterioration would probably occur more slowly than previously. Fish populations would decline accordingly.

Some fish populations could be lost, as was documented for Lahontan cutthroat in Jack Creek in the Elko Resource Area between 1958 and 1977. Loss of populations would mean that even less of the existing demand would be satisfied, and associated local economic benefits would decline. It is important to note that if BLM allowed this decline to take place, it would be in noncompliance with the Endangered Species Act.

Given the limited stream resources in this area, the demand for quality stream fishing will probably never be satisfied, even with rehabilitation of deteriorated habitat. However, if population levels within the resource area more than double within ten years, an substantial increase in the fishing resource will be needed just to satisfy demand to the same relative degree.

Stream rehabilitation would probably achieve at least this level of increase. In addition, it could lead to a substantial increase in highly sought after trophy trout stream fishing.

WILD HORSES

EXISTING SITUATION

Current Management Requirements and Constraints

Consistency with Policies, Plans, and Programs of other Agencies

The wild horse program in the Wells Resource Area requires coordination with the Ely BLM District. All actions, such as herd management plans, inventories, studies, etc., must be coordinated between both districts in areas where horses move back and forth across district lines.

Coordination with other agencies and state entities is minimal. Some information on horse numbers and locations is shared with the Nevada Department of Wildlife and the U.S. Fish and Wildlife Service.

Other Constraints or Influences

The wild horse program is very controversial and is somewhat constrained by political considerations. On the one side are the wild horse interest groups pushing for more horses and existing horse use areas; on the other side are the livestock and wildlife interests pushing for fewer horses and horse use areas. In this type of situation, BLM must strive to find the middle ground.

Description of the Environment

The present herd use areas are firmly established (see wild horse overlay).

No complete counts were made in these areas in 1971. The first counts made in the area were in 1975; however, these counts included numerous claimed horses that were gathered prior to 1978. The first count after the claiming period occurred in March 1978 and showed the following:

<u>Herd Use Area</u>	<u>Number of Horses</u>
Maverick-Medicine	112
Cherry Creek	74
Antelope Valley	449
Goshutes	129
Spruce-Pequop	No count made
Toano	No count made

A total of 711 wild horses were gathered and removed from the Antelope Valley and Cherry Creek herd use areas in January 1980. This number included approximately 200 horses from the Ely district.

The estimated present numbers of wild horses are tabulated as follows:

<u>Herd Use Area</u>	<u>Number of Horses</u>	<u>Date of Count or Estimate</u>
Maverick-Medicine	244	Count/March 1981
Cherry Creek	64	Count/March 1981
Antelope Valley	164	Count/March 1981
Goshutes	120	Count/March 1981
Spruce-Pequop	80	Estimate/1981
Toano	20	Estimate/1981

There is considerable interplay between the Elko and Ely districts in the Maverick-Medicine, Cherry Creek, and Antelope Valley herd areas. This back and forth movement doesn't appear to be organized migration that occurs every year but is more a function of weather and availability of feed and water supplies.

The only conflicts with private landowners, (conflicts arising from wild horses using private forage, space, and water) would be in the north end of the Spruce-Pequop herd use area, the north end of the Goshute herd use area, and the Toano herd use area. These are all areas having checkerboard land patterns.

The remaining herd use areas are all well blocked public land areas. The Wild Horse and Burro Act protects only unbranded and unclaimed horses which utilize public lands as all or part of their habitat.

If a private land holder should request BLM to remove horses from private lands, BLM is obligated to do so. BLM may also pursue cooperative agreements with a private land holder to allow for a certain specified number of wild horses to exist on the intermingled land.

WILD HORSES

DEMAND FORECASTS AND DEPENDENCE

National, Regional, and Local Dependence on Wild Horses

There is no economic dependence on wild horses per se. The demand for wild horses is more in the form of people wanting to have wild horses left in areas where they occurred in 1971.

Existing and Projected Demands

The demand for horses gathered under the adopt-a-horse program has been adequate at the \$25.00 per horse plus transportation fee. When the adoption fee is raised to \$200.00 per horse, this demand is expected to drop off substantially, leaving no market for many excess wild horses.

The demand for continued wild horse herds on public lands is expected to continue. Exact numbers and areas of use is still a question to be resolved between the competing interests and BLM.

Social and Economic Factors

Economic Analysis

A fecal analysis study conducted in 1980 indicated very little diet overlap between wildhorses, antelope, and deer. However, there was considerable overlap between horses and cattle.

The value of the forage that wild horses consume can be estimated. The market value of an AUM was approximately \$7.88 in 1980 (according to the Livestock Survey: Economics, Statistics, and Cooperative Service, USDA). The estimated 1980 wild horse population of the Wells RA was about 1,361. At a value of \$7.88 per AUM, they consumed \$128,696 in 1980.

Wild horses are gathered periodically to maintain a stable population. Gathering costs range from \$60 to \$100 per animal (according to the Nevada BLM State Office Wild Horse Specialist). A figure of \$91 per horse (delivered to the adoption center by the contractor) has been reported for the Wells RA. A total of 711 wild horses were gathered in 1980 in the resource area, which resulted in a total cost of \$64,701.

BLM's plan to raise adoption fees for wild horses and burros has been delayed until January 2, 1982. The increase, which would create a uniform adoption fee system of \$200 for wild horses and \$75 for burros, was originally scheduled to go into effect on October 1, 1981.

The delay gives BLM time to assess the effects of the fee increase on demand for wild horses and burros. The review over the past several months indicates the adoption program would not meet the Bureau's removal and disposal goals of 11,000 excess animals for fiscal year 1982.

The increase is designed to reduce the Federal subsidy for the program. Previous fees had ranged from as low as a few dollars to \$145, depending upon the location.

Social Values and Public Attitudes--Local

Local attitudes toward wild horses are fairly consistent. All the ranchers interviewed thought that there are too many wild horses on the range competing with cattle and in some cases, they say, almost putting them out of business. Since the ranching community is valued highly socially, culturally, and economically by local residents, these residents generally agree with the ranchers that the wild horse numbers should be reduced, but not entirely eliminated.

The idea of maintaining at least a small herd was voiced by almost every interviewer. One rancher stated that "if we want more wild horses after we reduce them, then someone can just leave a gate open and domestic horses will propagate the range again.

Most people who live in the area feel that the passage of the Wild Horse and Burro Act was highly emotional and lacked any justifiable basis. An attitude that was voiced by one knowledgeable rancher typifies the attitude of most ranchers interviewed: "Wild horses are one of the worst range damaging agents. It only takes two and in a little while there is a whole herd. If they were eliminated they could be reintroduced very easily."

He goes on to say that "the Wild Horse and Burro Act was a real mistake. There were seven or eight years of no management while we waited for this act to pass, and in that time the wild horse population grew immensely. Now that the act has passed, the hands of BLM are really tied in terms of any real management."

A rancher's daughter stated that ranchers used to cull herds before the Act but now there are many animals (especially in dry years) that are in really pathetic shape.

A few individuals (a miner and three ranchers) expressed the view that the wild horses in Nevada are not the romanticized vision that some people have of noble stallions with flowing manes. They expressed the opinion that the wild horses of Nevada are tough-looking range horses which they don't find to be particularly stirring to look at. One veteran rancher said that these wild horses have been so inbred, that the "brains have been bred out of them. Even with 2 or 3 years of good feeding, they still did not develop into a good horse with cow savvy."

A few individuals (11 percent) in the sample wanted to see more wild horses on the range. A casino owner thought that it was good business because he would take tourists out and show them the wild horses. Two interviewees thought that the ranchers were the only ones against wild horses; these interviewees thought that cattle interests should not be dominant over other resources.

Individuals had differing views on how to resolve the wild horse issue. Some recommended a wild horse preserve on public lands. Others felt that nature should be left alone and the only predator (the ranchers) should be the ones left to reduce the numbers--this also saves the taxpayer dollars. Another interviewee thought that wild horses should be managed as any other resource and not ahead of any other resource.

Social Values and Public Attitudes--National

Nationwide, there is sentiment in favor of maintaining more wild horses and ensuring that these horses receive high priority and recognition. This was demonstrated by the passage of the Wild Horse and Burro Act.

WILD HORSES
SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT

Current Trends in Wild Horse Numbers and Range Conditions

Wild horses in the Wells Resource Area (RA) appear to be increasing in numbers. However, BLM has no long-term production data which would substantiate this assumption.

Range condition is considered fair to poor in parts of most of the herd use areas. These fair-to-poor areas generally include the lower, more accessible lands and areas close to water.

Once the 1979-80 range survey is completed, BLM will have a better idea of overall range condition. Presently, it is estimated that the Goshute herd use area is in mostly good condition, with some small areas of overuse having poor condition range. The remaining herd use areas are estimated to be in poor to fair condition overall.

Population Levels Based on Minimum and Maximum Numbers

For a population to have a reasonable chance of surviving, it must be large enough to contain enough genetic variability to adapt to environmental conditions and changes. However, no studies have been done concerning genetic variation within populations, so it is not known what size a population must be to be viable.

A larger population contains more diversity. It is thus more able to adapt to environmental changes than a small population.

The minimum number in most herd areas should probably be no less than 50 horses, with the maximum being as many animals as the available vegetation will support in conjunction with other grazing animals.

WOODLAND PRODUCTS EXISTING SITUATION

Current Management Requirements and Constraints

Coordination with the Nevada Division of Forestry (NDF) is necessary when dealing with sales of forest products. Christmas tree sales, in particular, are a combined effort between the Bureau and NDF; NDF does compliance checks and issues the tree shipping permits.

Two other state agencies that work with the Bureau are the motor carrier divisions of Nevada and Utah. They help with compliance by checking for tree tags and shipping permits.

BLM also coordinates with private land owners in instances where their land is intermingled with the public domain. The Bureau needs their cooperation for combined sales or for getting access into sale areas.

Description of Environment

Woodland species to be managed consist of pinyon pine, juniper, curly leaf mountain mahogany, aspen, white fir, limber pine, bristlecone pine, Engelmann spruce, and white bark pine. Pinyon pine, Utah juniper, and mountain mahogany are the three most common tree species in the Wells Resource Area (RA). They occupy approximately 95 percent of an estimated 600,000 to 700,000 forested acres in the resource area.

Cordwood yields per acre vary with the density, age, and composition of different stands. Without having the woodland inventory completed, actual volumes or numbers are not available. Volumes or numbers mentioned in the following sections are based on professional knowledge.

Pinyon pine is used for fuelwood, pinenuts and Christmas trees. In mixed stands, pinyon will produce 5 to 7 cords per acre and, in pure stands, 11 to 15 cords per acre. Prime Christmas tree areas may support 10 to 20 trees per acre; however, most areas produce 2 to 3 trees per acre.

Pinyons produce nut crops at intervals of three to five years. Crops are more frequent in favorable localities where the species flourishes and are generally poorer and less frequent near the fringe of the type. Because of the staggered nature of crop years between areas, locally good crops generally occur somewhere every year.

The size of the nut crop varies with the particular year. Yields in the better natural stands have been estimated to reach 300 pounds per acre during good crop years (Hamilton 1965).

Utah juniper is used for fuelwood, posts, and poles. Juniper produces 5 to 15 cords per acre, depending on site quality. No numbers are available for posts and poles.

Mahogany and aspen are generally used for fuelwood. White fir, limber pine, bristlecone pine, and whitebark pine have little economic value--their appeal is primarily aesthetic.

There has been little specific management directed toward woodland products in the Wells RA beyond providing permits to the public for fuelwood, posts, poles, and Christmas trees. As a result, resource deterioration is becoming more apparent in certain areas.

Past cutting practices included going wherever the cutter chose to go and cutting as much of the resource as possible. This has led to a number of serious problems. These include prime Christmas tree areas being overcut to the point where they will not be able to support harvests for another 15 to 30 years. This clearly constitutes abuse of these important forested riparian areas.

WOODLAND PRODUCTS
DEMAND FORECASTS AND DEPENDENCE

Economic Analysis - Local

Noncommercial demand for woodland products has been for fuelwood, posts, pinenuts, and Christmas trees. Commercial demand has been for Christmas trees and fuelwood.

Commercial demand for Christmas trees has increased dramatically over the last few years. Sustained yield limitations are being imposed beginning in 1982 to prevent deterioration of the resource. Selective fuelwood cutting areas for commercial companies are also being planned for the Wells Resource Area (RA).

Table 3-16 shows the volume and monetary value of sales of forest products in the Wells RA.

TABLE 3-16
TOTAL SALES OF FOREST PRODUCTS ^{1/}

<u>Fiscal Year</u>	<u>Fuelwood</u> (cords)	<u>Posts</u> (ea)	<u>Christmas</u> <u>Trees</u> (ea)
1980 Volume	632	4,905	7,560
Monetary Value to BLM	\$1,264	\$999	7,560
Estimated Market Value	\$47,400	\$20,600	\$181,440
1981 Volume	762	2,508	14,493
Monetary Value of BLM	\$1,524	\$508	\$14,493
Estimated Market Value	\$60,960	\$10,532	\$347,832
1982 Volume	910	3,000	3,547
Monetary Value to BLM	\$1,820	\$600	\$6,342
Estimated Market Value	\$77,350	\$13,380	\$85,128

Note: An estimated 3 times the amount of fuelwood and Christmas trees are removed in trespass, so these figures are below the amount harvested.

^{1/}Total sales include both in state and out-of-state sales of forest products to both commercial and noncommercial buyers.

Demand is expected to continue at present levels for these products. Demand for Christmas trees will depend to a large degree on the level of population in the area and in surrounding metropolitan areas. Residents from Idaho and Utah also come to the Wells RA for Christmas trees.

The pinyon pine has become a particularly sought after Christmas tree. Demand has become so great that it has become necessary to manage this resource if it is to survive.

Demand for wood posts will depend on the price of steel as well as the level of intensity of range management (requiring new fencing and fencing maintenance).

Demand for fuel wood will depend on the level of population in the area and the costs of other sources of energy. The high price of fossil fuels has caused many people to turn to wood as a secondary or even a primary source of home heating. In addition to providing a recreational opportunity, the savings derived from gathering wood could add up to a considerable economic benefit for local residents.

Another indicator of demand is the sale of related products. While specific numbers are not available, interviews with local store managers reveal a sharp increase in the sale of wood stoves, fireplace equipment, and chain saws. A similar increase occurred in 1973-74 during the oil embargo.

Pinenuts are also harvested in the area. The Native American population have used pine nuts in their diet for many generations. No figures exist to quantify the pinenut harvest.

Economic Analysis - Regional

The majority of commercial Christmas tree cutting has been by businessmen from neighboring states - Utah and Idaho. Table 3-17 portrays values relating to out-of-state activity.

TABLE 3-17
SALES OF FOREST PRODUCTS: OUT-OF-STATE^{1/}

	<u>Christmas Trees</u>
FY 1980 Volume (no. of trees)	5,700
Monetary Value to BLM	\$5,700
Estimated Market Value	\$136,800
FY 1981 Volume (no. of trees)	11,000
Monetary Value to BLM	\$11,000
Estimated Market Value	\$264,000
FY 1982 Volume (no. of trees)	2,115
Monetary Value of BLM	\$4,913
Estimated Market Value	\$50,760

^{1/}Figures include both commercial and noncommercial sales.

Social Values and Public Attitudes

Public attitudes toward forest resources are divided. This was discovered in the social analysis interviews conducted during the summer of 1981. A majority of interviewees (65 percent, including four ranchers) wanted some green wood firewood areas. However, they were aware that this resource is limited in Nevada and thus the cutting should be limited.

They thought that there was plenty of dead wood available and that only a few green wood areas might be necessary. Many persons also thought that selected cutting areas should be for pinyons and junipers because they are so plentiful, rather than for aspen, which is in limited supply. The main thrust of the majority view was that green wood firewood areas could be established as long as good planning and good management techniques were used.

Several interviewees (15 percent) stated that the cutting of junipers enhanced cattle grazing. One forester commented that "we have controlled the cutting so much that these trees are really encroaching on grazing."

There were others (29 percent) who were totally against the cutting of green wood. These people wanted the aesthetic value of living trees to be protected. They thought that there were relatively few trees in Nevada and all of them should be protected. An Indian from the Indian Colony of Elko stated that "it takes many years to grow trees in this country and they can be destroyed overnight."

The great majority of interviewees (88 percent) were generally positive regarding the monetary fees for posts and poles. They didn't mind the charge and felt that this type of restriction was necessary to protect the resource. One interviewee stated that fees on posts and poles and other woodland products are good management because the harvest process should pay for itself. However, a state forester in the district stated that "these fees on posts and poles are good if they are charged to commercial interests for a product and not just imposed as a regulation on the public."

WOODLAND PRODUCTS
SUSTAINED LEVELS OF USE

The goal of the forestry program is to manage the woodland resources under the principle of sustained yield. The objective is to regulate the allowable cut to contribute to the economic stability of local communities while providing a permanent source of woodland products for future generations.

The Wells RA has a high level of use of woodland products. The pinyon pine Christmas tree, in particular, experiences an overwhelming demand. If present harvest levels continued to accelerate at the current rate, the pinyon pine Christmas tree could be virtually eliminated in accessible areas within two to three years.

Pinyon pines have a relatively slow growth rate in most locations, taking around 40 years to become an acceptable-sized (5 to 7 feet) Christmas tree. Refer to Woodland Products overlays, which depict areas where pinyon pine Christmas tree stands occur.

Firewood is another product that is in high demand in this area. Species utilized for firewood include pinyon pine, Utah juniper, quaking aspen, and curlleaf mountain mahogany. Of particular concern are accessible areas within a 70-mile radius of populated areas. Some major problems that exist in these areas are the abuse of riparian zones, clearcutting (dead and green), and trespass cutting.

Pinenuts will be in greater demand in the future. One of our neighboring districts, Battle Mountain, sells over 100,000 pounds of pinenuts in a season on a bid basis. As the demand increases, commercial pickers are expected to move into our district looking for additional supplies.

Quaking aspen, being a desirable but less frequently occurring species in the Wells RA, requires special management to ensure maintenance of existing stands. Wholesale cutting, which has occurred in certain areas in conjunction with large ungulate use, has resulted in overmature and/or severely declining conditions.

WILDERNESS EXISTING SITUATION

Current Management Requirements and Constraints

Section 603 of the Federal Land Policy and Management Act of 1976 (FLPMA) requires the Bureau to review its roadless areas of more than 5,000 acres and to recommend their suitability or unsuitability for wilderness preservation to the Secretary of the Interior. The inventory process has been completed and four wilderness study areas (WSAs) have been designated in the Wells Resource Area (RA). These will be evaluated through the resource management plan (RMP) for their suitability for inclusion in the National Wilderness Preservation System.

Consistency with Policies, Plans, and Program of Other Agencies

Since the passage of the Wilderness Act of 1964, wilderness preservation has become consistent with the goals of the National Park Service, the U.S. Fish and Wildlife Service, and the U.S. Forest Service. Wilderness designation is not consistent with development oriented agencies such as the U.S. Army Corps of Engineers and the Bureau of Reclamation.

The Nevada Statewide Comprehensive Outdoor Recreation Plan (SCORP) of 1977, prepared by the Nevada Department of Parks and Recreation, states that additional areas of the state should be preserved in their natural condition. However, it should be noted that the state of Nevada does not now, nor does it in the foreseeable future plan to, manage any state wilderness areas.

The General Plan for Elko County dated June 1971 recommends the "conscious preservation of open space. These essentially take the form of wilderness and scenic areas, drainage basins, and areas of historical or cultural significance. Most require a bare minimum of maintenance other than a policy prohibition of any development which would change their intrinsic character." This indicates a consistency with wilderness preservation.

Any Other Constraints or Influences

The current Federal administration is determined to reduce U.S. dependence on foreign sources for strategic and critical nonenergy minerals and energy resources. The existence, or potential existence, of these resources in WSAs could have a strong bearing upon their designations as wilderness areas.

Locally, the livestock and hard rock mining industries wield considerable political influence. These industries have long been opposed to the designation of wilderness areas--particularly on BLM administered lands.

Description of Environment

Table 3-18 displays the important resources and/or conflicts that exist in the WSAs. Additional information can be found in the intensive wilderness inventory files for each WSA.

TABLE 3-18
WSA RESOURCES AND CONFLICTS

Acres	Bluebell 55,665	Goshute Peak 69,770	South Pequop 41,090	Bad Lands 9,100
Solitude	X	X	X	X
Primitive Recreation				
Backpacking/Camping	X	X	X	X
Hiking	X	X	X	X
Horseback Riding	X	X	X	X
Hunting	X	X	X	X
Sightseeing/Photography	X	X	X	X
Fossil Collecting	X			
Fishing				X
Wildlife Observation	X	X	X	X
Special Features				
Archaeological Sites	11	3	1	5
Historical Sites	4			
T & E Fauna		Bald Eagle		
T & E Flora				
Wild Horses	120	120	75	
Scenic Features		X	X	X
Geological Features	X	X		X
Multiple Resource Benefits				
Watershed Protection				X
Wildlife Habitat Protection	X	X		X
Cultural Resource Preservation	X	X		X
Scenic Quality Protection			X	X
Mining Claims				
Number	49	20	0	0
Acres	980	400	0	0
Oil and Gas Leases				
Number	9	12	15	1
Acres	9,600	10,370	18,600	2,325
Livestock AUMs	4,340	5,593	4,501	904
Lands Actions				
Rights-of-Way		Highway 93 Phoneline along 93 8	Railroad	Bell Brand/ Agee Phoneline
DLE Applications				

Bluebell Wilderness Study Area

The Bluebell WSA is rectangular (averaging about 7 miles wide by 11 miles long) and consists primarily of the north-south trending Goshute Mountains. These mountains comprise about 45,000 of the unit's 55,665 acres. The remainder is mostly foothills and bajada.

There are four cherry-stemmed roads that provide access to the interior of the WSA. The district's evaluation of manageability will force decisions pertaining to their possible closure. In addition, an evaluation of closing the Morgan Pass road and joining the Bluebell and Goshute Peak WSAs will be necessary.

Outstanding solitude is attainable throughout the primarily pinyon-juniper covered WSA but especially within about 15 of the larger canyons, which range from 2 to 4 miles in length. Some of these larger drainages are West Morris Basin, Thirty-mile Canyon, and Johnson Canyon on the west side and Morris Basin, Erickson Canyon, and Morgan Basin on the east side.

Primitive recreation opportunities available include backpacking/camping, hiking, horseback riding, hunting for mule deer and blue grouse, wildlife observation, fossil collecting, and sightseeing/photography. No surface waters exist but about five ground water sources are present. A knowledge of their location would be critical to the recreationist.

Special features include 13 aboriginal and historic sites, 7 of which are clustered around Mud and Erickson springs. These are of prehistoric origin. It is believed that at least one rockshelter in the Goshute Mountains contains red pigment pictographs. The WSA also contains the Goshute Herd Use Area; 120 wild horses roam throughout the area.

Other uses of the area include mining, oil and gas exploration and livestock grazing. There are 49 mining claims comprising 980 acres, nine oil and gas leases covering 9,600 acres, and 4,340 AUMs of forage available for livestock.

Goshute Peak Wilderness Study Area

The Goshute Peak WSA is oblong (averaging about 7 miles wide by 20 miles long) and, like Bluebell, consists primarily of the Goshute Mountains. About 46,000 of the area's 69,700 acres are mountainous. Foothills on the eastern slope of the mountains comprise about 15,000 acres, with the remaining 8,700 acres consisting of alluvial fans on the western side of the mountains.

Cherry-stemmed roads should not be an issue, but the possible closure of the Morgan Pass road so as to join Goshute Peak and Bluebell WSAs should be addressed when evaluating manageability.

A cabin is located on public land among the pinyon-juniper in the SE SE1/4 of Section 22 of T. 32 N., R. 68 E. It is furnished with a table and chairs, stove, cot, bunkbed, and kitchen supplies. The roof has been half covered with new asphalt shingles since the inventory was done in 1979. The cabin does not detract from the naturalness of the WSA. Rehabilitation of the area must be considered as part of the manageability evaluation.

Outstanding solitude is attainable throughout the WSA because of its moderate density of pinyon-juniper, extreme topographic relief, and large size. Three of the drainages which provide exceptional solitude are Lion, Felt Spring, and Ferguson Canyons.

Primitive recreation activities available include backpacking/camping, hiking, horseback riding, hunting for mule deer and blue grouse, wildlife observation, fossil collecting, and sightseeing/photography. Surface waters are not available and there are fewer ground water sources in Goshute Peak than in Bluebell.

Of major significance is the raptor trapping area located atop the ridgeline in the SE1/4 of section 35 of T. 39 N., R. 68 E. At this site over the past three years Steve Hoffman, Wildlife Biologist for the USFWS, has trapped and counted raptors from late August to mid-October. About 5,000 to 6,000 raptors migrate south along the Goshute Mountains annually in the fall. These birds, which fly over both the Bluebell and Goshute Peak WSAs, consist of sharp-shinned, red-tailed, and Cooper's hawks as well as kestrels and goshawks.

Special features include three archaeological sites, 120 wild horses in the Goshute Herd Use Area, and a roost tree for wintering bald eagles. It is further believed that at least one grotto in the Goshute Mountains contains pictographs. The rocky outcrops on the western side of the WSA also provide excellent scenic quality.

Other uses of the WSA include mining, oil and gas exploration, and livestock grazing. There are 20 mining claims comprising 400 acres, 12 oil and gas leases covering 10,370 acres, and 5,593 AUMs of forage available for livestock.

Two rights-of-way extend into the WSA. These are the Highway 93 right-of-way (#CC024380) and the phoneline right-of-way next to Highway 93 (#CC017654). Any proposed suitable recommendations should exclude lands within these rights-of-way.

South Pequop Wilderness Study Area

The South Pequop WSA is horseshoe shaped and consists primarily of the north-south trending Pequop Mountains. The mountains comprise about 33,000 of the area's 41,090 acres. The remaining 7,680 acres are bajadas along the western and eastern slopes of the mountains.

There are five cherry-stemmed roads that provide access to the interior of the WSA. Decisions pertaining to the possible closure of these access routes will be required to determine manageability. In addition, the configuration of the WSA might impact its manageability.

Outstanding solitude is attainable throughout the pinyon-juniper covered WSA. There are about 10 unnamed drainages which trend southeasterly and northwesterly to the ridgeline. These, in combination with the moderately dense vegetation, provide places of seclusion for the visitor.

Primitive recreation opportunities available include hiking, camping, horseback riding, hunting and sightseeing and photography. The diversity of ridgeline and drainage hiking and camping and the exceptional scenic quality of the WSA combine to provide outstanding primitive recreation opportunities.

Other uses of the WSA include mining, oil and gas exploration and livestock grazing. There are no mining claims, 15 oil and gas leases covering 18,600 acres, and 4,501 AUMs of forage available for livestock grazing.

The railroad right-of-way at the northern end of the WSA may extend into its boundary. Eight DLE applications totaling 2,560 acres are also on land within the WSA. These situations should be examined as part of the manageability determination.

Bad Lands Wilderness Study Area

The Bad Lands WSA is generally circular (about 4 miles wide by 6 mile long) and is composed of rough volcanic hills, steep canyons, and gently sloping mesas. The areas north and immediately south of Salmon Falls Creek are rough volcanic hills and total about 6,000 acres. Salmon Falls Creek Canyon, with its lush riparian habitat, totals about 1,100 acres. Its 10 adjoining side canyons comprise about 900 additional acres. About 1,000 acres of gently sloping mesas are found south of the river in sections 27 and 34.

The unit is devoid of cherry-stemmed roads and private inholdings, both of which affect the manageability of an area.

Outstanding solitude is attainable throughout the WSA, especially within Salmon Falls Creek and its associated drainages. The riparian vegetation in the 8-mile main river canyon reaches heights of 15 feet. Even the intermittent drainages contain stands of tall sagebrush 6 feet high. Topographically, Salmon Falls Creek is generally rimmed by steep canyon walls that fall away about 200 feet to the canyon floor. The 2 largest of the 10 side drainages are Scott and Monkey creeks. Scott Creek is U-shaped, about 5 miles long, and surrounded by volcanic hills which provide excellent solitude. Monkey Creek is V-shaped, sinuous, 6 miles long, and surrounded by steeper volcanic hills. It also provides areas of seclusion. The remaining drainages are primarily U-shaped and range from 1/2 to 2 miles long.

Primitive recreation opportunities available include backpacking/camping, hiking, hill climbing, horseback riding, stream fishing, deer hunting, wildlife observation, kayaking, and sightseeing/photography. The Bad Lands WSA offers one of the best opportunities in the district for foot travel in canyonland topography. It also provides one of two opportunities in the district for kayaking. Although it is not white-water, it would be considered Class I and II. The stream fishing available to the kayaker or hiker is perhaps the best in Elko County. Both rainbow and German brown trout up to four pounds are known to frequent these waters, due primarily to the excellent riparian habitat found along its banks.

Special features include five archaeological sites of prehistoric origin. One site near the confluence of Scott Creek and Salmon Falls creeks contains a

cluster of seven rockshelters. Based on the presence of points, flakes, bone and mussel shell, these were inhabited by aboriginies at least part of the year during prehistoric times. These shelters have been heavily potted since their discovery in 1975. The area also has excellent scenic quality and contains interesting geologic formations.

Other uses of the WSA include mining, oil and gas exploration, and livestock grazing. There are no mining claims, one oil and gas lease covering 2,325 acres, and 904 AUMs of forage available for livestock.

A phoneline for the Bell Brand and Agee ranches was built in trespass. This line forms portions on the southern and western borders of the WSA. An application for a 25-foot wide right-of-way has been received on this project. The phoneline and right-of-way application will need to be considered in determining manageability.

Local and Regional Sentiment Toward Wilderness

The local sentiment of persons in Elko and surrounding rural counties would definitely disagree with the statement quoted earlier from the Elko County General Plan. Most persons in the region seem to resent any wilderness area designation--whether Federal or state--because they see such designation as a "lock up" of the resources and a "lock out" of the general public.

State Sentiment Toward Wilderness

The SCORP, although it generally agrees with the concept of wilderness areas, does not list such designation as high on its list of priorities. The governor has said publicly he does not believe that additional wilderness areas are needed in Nevada.

Sentiment of Conservation and Preservation Groups Toward Wilderness

Conservation groups in Nevada, generally located in Reno-Sparks and Las Vegas, support future designation of wilderness areas in the Basin and Range Physiographic Province. Most existing wilderness areas are forested alpine types. Conservation groups point out that desert-type wilderness areas are needed for future generations to enjoy.

Management of the Jarbidge Wilderness Area

The 64,380-acre Jarbidge Wilderness Area is managed by the Jarbidge Ranger District, Buhl, Idaho. During July and August, two persons each are stationed at the Pole Creek and Mahoney Ranger stations. These people work either on wilderness patrol or trail maintenance of the 125 miles of trail.

The ranger district reports very little problem with management of the 13,000 visitor-days of recreation use annually. The only citations issued have been for motorcycle use. The district also reports that no permit system is in operation now, but increased use over the next decade is expected to require its implementation. Other restrictions such as requiring the use of portable cooking stoves in lieu of open fires, may also be required in the future.

WILDERNESS
DEMAND FORECASTS AND DEPENDENCE

There are three existing wilderness areas within a 5-hour driving time of the city of Wells. They are the 64,830-acre Jarbidge and the 30,000-acre Lone Peak wilderness areas administered by the USFS and the 43,000-acre Craters of the Moon Wilderness Area managed by the NPS. Table 3-19 lists current projected annual visitor-days by year at the three wilderness areas.

TABLE 3-19
CURRENT AND PROJECTED ANNUAL VISITOR-DAYS

	<u>Year</u>			
	1981	1985	1990	1995
Jarbidge	21,000	25,000	32,000	35,000
Lone Peak	43,500	53,000	67,000	86,000
Craters of the Moon	1,400	1,500	1,700	2,000

Jim Percy, Park Ranger of the Jarbidge Wilderness Area, believes that the currently low visitation at this area is due primarily to its remote location from major population centers. He feels that over the next decade wilderness areas more accessible to metropolitan areas will experience overcrowding, leading people to the more remote areas. He predicts that visitation will have increased so much in the Jarbidge Wilderness Area by 1990 that the Forest Service will require a permit system and enforce a prohibition of campfires. Even with these more intensive management practices, table 2 shows an expected small increase in visitation in 1995 over 1990.

Neil King, Park Ranger of the Craters of the Moon Wilderness Area, believes that the area's remoteness and lack of water and vegetation have been, and will continue to be, instrumental in causing low visitation in the wilderness area. Most persons visit in the spring and fall and camp overnight near the end of a 3-mile trail. Since vegetation is sparse, no fires are allowed and portable cooking stoves are required. The capacity of the wilderness area is not expected to be reached until far beyond 1995.

Lone Peak Wilderness Area, located in the Wasatch Mountains between Salt Lake City and Provo, Utah, receives 43,500 visitor days annually, but more than 75 percent of this is day use. One-third of the area is restricted to day use only because it is the municipal watershed for Salt Lake City. The other two-thirds of the area is visited primarily on horseback, and, because of the area's small size, very little overnight use occurs.

Wilderness Resource Economics: Recreation Use and Preservation Values, prepared by the Department of Economics of Colorado State University in May 1981, states that the U.S. Forest Service estimated a value of 8 to 12 dollars per 12-hour visitor day of wilderness use in 1980. Using a \$10.00 per visitor day value, table 3-20 displays current and projected economic benefits derived from the three existing wilderness areas.

TABLE 3-20
CURRENT AND PROJECTED BENEFITS

	Year			
	1981	1985	1990	1995
Jarbridge	\$210,000	\$250,000	\$320,000	\$350,000
Lone Peak	435,000	530,000	670,000	860,000
Craters	14,000	15,000	17,000	20,000

Social benefits derived from wilderness preservation are numerous. They range from the social benefit of the recreationist's renewed spirit as he/she participates in a primitive recreation experience to the benefit derived by the public in the knowledge of its presence and, perhaps, its future availability to them. Social benefits between these extremes relate to the value of protecting and/or preserving watersheds, wildlife species and/or their habitat, natural plant communities, cultural and historic resources, and scenic values.

These benefits are difficult, if not impossible, to quantify. However, if they could be, the results would be additive to those derived directly from visitation.

Estimated existing and projected recreation visitor days for the four wilderness study areas (WSAs) and recreation benefits are displayed in table 3-21. These estimates assume that the areas do not become wilderness areas. If designation did take place, a greater increase in visitation could be expected because of the publicity the area(s) would receive.

TABLE 3-21
USE ESTIMATES FOR WSAs

	1981		1985		1990		1995	
	VD ¹	\$	VD ¹	\$	VD ¹	\$	VD ¹	\$
Bluebell	300	3,000	300	3,000	300	3,000	500	5,000
Goshute Peak	300	3,000	300	3,000	300	3,000	500	5,000
South Pequop	150	1,500	150	1,500	150	1,500	200	2,000
Bad Lands	1000	10,000	1,000	10,000	1,500	15,000	2,000	20,000

¹Visitor-days.

WILDERNESS
SUSTAINED LEVELS OF USE

Only the Bad Lands WSA has even a slight chance of reaching its carrying capacity--even with designation--within the next two decades. Most visitors here are expected to be attracted to Salmon Falls Creek because of its fishing, water, and wildlife habitat. Some trampling of riparian vegetation could occur as well as overuse of campsites in the future. A permit system to limit use may be needed if resource damage occurred.

The size of the other three WSAs is expected to disperse users such that capacity or resource damage problems should not occur. In addition, the general lack of water in these areas would generally limit the number of users.

LIVESTOCK GRAZING
EXISTING SITUATION

Current Management Requirements and Constraints

Consistency with Policies, Plans, and Programs of Other Agencies

Other Federal Agencies. There is a withdrawal, pending by the Forest Service, of a 13,000-acre strip of land averaging 1 mile in width and approximately 30 miles in length currently administered by the Bureau. The area follows the base of the Ruby Mountains on the east side in Ruby Valley and generally separates Forest Service from private lands

The following small allotments and pastures will be transferred to the Forest Service if the withdrawal is approved by Congress: Overland Creek, Mayhew Creek, Forest, and South Ruby allotments, along with the Forest Pasture of Ruby #7 Allotment and pasture A of the Harrison Allotment.

Loss of administration of these allotments and pastures would have no significant impact on Wells Resource Area (RA) grazing administration, with the exception of pasture A of Harrison Allotment. Pasture A will be controlled by the Forest Service, with administration retained by the Bureau to maintain the integrity of the Harrison Allotment grazing rotation system.

Most of the water in Ruby Valley and O'Neil Basin originates on Forest Service lands. Several springs have been developed on Forest Service land and piped to BLM lands. This has been handled through an interagency agreement with the cooperation of the Forest Service.

State and Local Agencies or Groups. State appropriation of water rights on public land has been a point of contention for the past few years. BLM has been unable to acquire water rights and subsequently unable to develop water projects without a way to protect the investment of public money. Water rights on new wells are now being obtained through a joint filing for appropriation between the operator and BLM. On appropriated waters, stipulations on the Cooperative Agreement requiring water to be supplied to the project and quit-claiming a portion of the water to BLM have helped to solve the problem.

Indian Tribes. There are no conflicts with policies, plans, or programs of the Te-Moak Bands of the Western Shoshone Indians.

Other Constraints or Influences

The Elko District has been the center of Nevada's power structure for the livestock industry since passage of the Taylor Grazing Act. The Elko-based leadership headquarters of the Nevada Cattlemen's Association has provided representation on the Public Lands Council, the political arm of the National Cattlemen's and National Woolgrower's Associations.

Close ties have also existed among Nevada Cattlemen's Association leaders in Elko and local leaders of the Nevada Central Board and northeastern Nevada State legislators. Nevada is the "home of the Sagebrush Rebellion," which was

initiated by two legislators located in the Elko District. This has resulted in the Wells (and Elko) resource areas often becoming the center of these influential legislators' focus on BLM.

Due to the recently revised Bureau policy regarding rangeland production surveys, production data from the 1979-80 range survey will not be used and a proposed allocation of vegetation will not be a part of the Wells RA environmental impact statement.

Recent policy changes through stricter interpretation of FLMPA regarding the use and distribution of range improvement funds have greatly increased the amount of 8100 (range improvement) funds for on-the-ground range improvement work. This will result in a significant increase in the number of range improvement projects. Current BLM policy on maintenance of projects is that those projects primarily benefiting livestock will be maintained by the livestock operator. Exclosures to protect fisheries habitat have been unpopular with some livestock operators. Through better coordination with the operators during the prework stages of the project, these problems can be overcome.

Description of the Environment

Range Condition and Trend

Range condition and trend information is based on the professional judgement of the Wells RA range staff; specific data was not available. Condition and trend are portrayed in the table on Categorization of Allotments in Chapter 4.

Allotment Management Plans, Grazing Systems, and Other Use Areas

There are nine allotment management plans (AMPs) in the Wells RA. Allotments under AMPs range in size from 418 to 119,410 acres and make up 344,302 acres of public lands.

There are 11 allotments in the Wells RA with grazing systems which are not under an AMP. These range in size from 2,449 to 238,254 acres of public lands and account for 407,176 acres in the Wells RA.

Allotments under neither an AMP nor a grazing system, i.e., under custodial management, comprise 3,523,279 acres, or approximately 80 percent of the Wells RA public lands. These allotments range in size from 263 to 797,164 acres of public lands. They are generally large, have their boundaries fenced (or have natural boundaries), and have few, if any, pasture fences. These allotments generally have poor livestock distribution patterns due to a lack of adequate water and pasture fencing.

Kinds of Livestock and AUMs of Authorized Use

The Wells RA contains approximately 4.3 million acres of public lands, with essentially all the area within grazing allotments.

The Wells RA contains a total of 379,314 AUMs of grazing preference. Authorized use comes to 279,054 AUMs (AUMs paid for over the past 3 to 5

years). This is approximately 75 percent of the total grazing preference. The reason for the difference between grazing preference and authorized AUMs of use is nonuse and overadjudication, as discussed under the adjudication sections of the Currie and Contact Planning Unit URA Step 3.

The authorized use of forage on the entire Wells RA averages 15 acres/AUM. This forage is utilized by 57,350 cattle, 32,100 sheep, and 171 horses. For grazing preference, authorized use, season of use, etc., by allotment, refer to table 3-22 and 3-23.

Periods of Use

The majority of cattle use is from April 1 to September 1 each year. This use extends through the critical growth period for most perennial grass species. Generally, growth has begun by April 1. This growth utilizes the previous year's carbohydrate root reserves. By approximately July 1, an ungrazed plant has replenished its root reserves but will not complete its growth cycle through seed ripening until August 1. Grazing year after year during the critical growth period of May 1 to July 1 is most detrimental.

Plants will generally have sufficient root reserves to recover if grazed before May 1 and some seed will be produced if grazed after July 1, which is before seed ripe. But if grazed from May 1 to July 1 every year, root reserves are reduced each year until the plant finally dies.

The period between April 1 and August 1 is also the time when plants are most nutritious. Private meadows are being bred to grow hay for wintering livestock and livestock are looking for green feed after having been fed hay during the winter.

The majority of sheep use is between November 1 and April 1, when the summer sheep range in Utah, where most of the sheep operators live, is snowed in and winter range is required. This is also the period when vegetation is least susceptible to grazing damage.

On winterfat range, grazing during the active growth periods--approximately April 1 to October 31--reduces plant vigor. Even light grazing may preclude seed production.

The only summer sheep use is confined to the Spruce and Gully allotments. The majority of use on Spruce Allotment is with cattle, but approximately 3,000 head of sheep are run until July 1. Sheep are on Gully Allotment from May 1 to November 1.

TABLE 3-22
LIVESTOCK GRAZING DATA
Contact Planning Unit

OPERATOR	ALLOTMENT NAME AND NO.	PERIOD OF USE	GRAZING PREFERENCE	AVERAGE 3-5 YEAR LICENSED USE	TOTAL HERD SIZE
R. Dirk Agee	Buckhorn-3210	4/1-11/30	6775	6635	10 H 1450 C
	Gully-3221	7/1-8/31	184	180	128 C
Fay C. Barger	Black Butte-3208	4/1-11/30	6474	6573	1394 C
Bedke & Sons Inc.	Big Bend-3205	4/1-12/31	10,021	6926	15 H 1100 C
Boies Ranches Inc.	Hubbard Vineyard-3225	4/1-12/31	13,096	13,029	50 H 2100 C
Thomas Buhl	Grouse Creek-3220	5/16-9/30	487	486	108 C
Jack Christensen	Pilot Valley-3219	8/1-2/28	893	657	191 C
George Cropp	Town Creek-3238	6/1-9/15	358	361	119 C
Cross X Ranch	Dairy valley-3215	4/16-10/15	798	467	133 C
c/o W.H. Thomas	Grouse Creek-3220	4/16-10/15	784	784	5 H 126 C
Demar Dahl	Rabbit Creek-3233	4/1-9/30	1072	1123	203 C
Dahl Land Co.	Bishop Creek-3206	4/16-9/30	1101	1005	348 C
Dalton Livestock	Wells-3240	5/1-9/30	551	556	216 C
	Dalton-3245	5/1-9/30	347	407	260 C
Farnes G. Egbert	Antelope-3203	5/1-10/1	478	554	95 C
W.H. Gibbs Co.	Hot Creek-3224	4/1-11/30	4163	4137	832 C
Hawks & Bellgardt	Anderson Cr.-3201	4/15-11/30	5467	4667	1450 C
Heguy Bros. &	Stag Mountain-3236	5/1-9/30	513	425	1750 S
J.M. Lasgoity	Pole Creek-3232	5/1-9/30	36	23	1750 S
Dell R. & Patty Hudson	Gully-3221	5/1-11/30	1449	1920	1600 S
Jones Brothers	Bear Creek-3204	7/1-10/31	240	242	60 C
c/o Fred W. Jones	Jackpot-3226	7/1-9/30	165	165	55 C
Lands of Sierra	HD-3222	4/1-10/31	22136	22136	2228 C
	Gamble Ind.-3218	4/16-10/31	18335	18335	2228 C
	Dairy Valley-3215	5/1-10/15	6433	6433	1300 C
	Pilot Valley-3219	11/1-2/28	4052	4052	1013 C
W.W. Loftin Inc.	Bishop Creek-3206	4/16-9/30	261	187	48 C
Marys River Ranch	Stormy-3237	4/16-2/28	6294	3942	14 H 1500 C
McCormick Bros.	Devils Gate-3217	4/10-12/31	6117	5232	3415 C
	Deeth-3216	4/10-12/31	22,437	20,367	15 H 6585 C
	Stag Mtn. 3236	6/1-9/30	7760	6295	3415 C
	Morgan Hill-3230	4/10-11/30	1127	59	10 H
	Pole Creek-3232	4/1-10/31	480	178	C
George S. Nixon	Cedar Hill-3212	4/16-10/31	1031	878	387 C
Palos Verdes	O'Neil-3231	4/16-11/30	14,198	13,157	1060 C
Investment Inc.					
Joseph R. Payne	Pilot Valley-3219	10/15-2/28	189	136	30 C
Peavey Cattle Co.	Metropolis-3228	4/16-9/30	2510	2020	460 C
	Railroad Field-3243	5/1-8/31	113	123	70 C

Peavey-Sims Ptnrshp.	Westside-3241	4/1-10/31	1707	1261	422 C
Pleasant Valley	Barton-3203	5/1-11/30	810	195	115 C
Grazing Assoc.	Cavanaugh-3211*	8/1-9/30	191	191	96 C
Ralph Poulton	Big Bend-3205	4/1-11/30	186	186	27 C
Salmon River	Salmon River-3234	4/16-11/30	27304	28045	7400 C
Cattlemens Assoc.					
William Spratling	Spratling-3235	3/20-9/30	1014	980	275 C
Horace Smith	Cottonwood-3214	4/1-10/31	1680	2108	40 H 233 C
John Tybo	Pilot Valley-3219	4/1-9/21	63	63	11 C
Ernest Uhlig	Trout Creek-3239	4/16-9/30	642	651	200 C
Victor Land & Lvstk.	Bluff Creek-3209	4/16-11/30	6445	6747	913 C
Dwight Warburton	Grouse Creek-3220	5/16-10/13	237	237	48 C
Reese Warburton	Grouse Creek-3220	5/16-10/13	238	237	48 C
Grace Warburton	Grouse Creek-3220	5/16-10/13	237	237	48 C
Wheeler Enterprises					
Incorporated	Jackpot-3226	5/1-12/31	6841	6869	1250 C
Frank Winchell	Metropolis Seeding-				
	3229	4/1-9/15	1126	919	320 C
	Town Creek-3228	5/1-9/15	752	472	260 C
	Bishop Flat-3207	6/1-10/31	276	249	230 C
Winecup Inc.	Little Goose Creek-				
	3227	4/1-11/30	6268	6332	850 C
Robert Wright	Holborn-3223	4/1-11/30	2267	2200	938 C

*Allotment is within the Contact Planning Unit but is administered by the Forest Service.

TABLE 3-23
LIVESTOCK GRAZING DATA
Currie Planning Unit

<u>OPERATOR</u>	<u>ALLOTMENT</u>	<u>GRAZING PREFER- ENCE</u>	<u>TOTAL HERD SIZE</u>	<u>CLASS OF STOCK</u>	<u>PERIOD OF USE</u>	<u>AVERAGE 3-5 YEAR LICENSED USE AUMs</u>
Robert Beaumont	Big Springs	18,272	1250	CA	3/1-10/31	8788
Brough, Ferris	Gordon Creek	141	200	CA	5/15-6/14	141
Cook, Art	Ruby #9	235	60	CA	12/1-3/31	235
Curtiss, W.C.	Warm Creek	175	55	CA	3/1-11/30	159
Dahl, Inc.	Ruby #4	314	300	CA	4/15-6/15	543
Dawley Creek Ranch	Harrison	627	180	CA	4/15-6/25 9/20- 12/31	762
	Forest	159	53	CA	5/1-5/31	53
	Ruby #9	94(FFR)	--	--	--	--
Deseret Livestock Company	Pilot	12,941	NON USE	SH	11/15- 3/31	NON USE
Duval Ranching Co.	Ruby #1	115	148	CA	5/1-6/1 8/1-8/31	174
	South Ruby	196	30	CA	5/16-7/31	80
Gardner, Walter	Fenced Federal	81	FFR	CA	FFR	81
Hansen, Wilmer	Ruby #2	237	45	CA	4/20-9/19	237
Heyguy Bros.	Boone Springs	3198	3500	SH	11/1-3/31	NON USE
	Curtis Springs	1841	3500	SH	11/1-3/31	NON USE
Jaques, Jerry	Ferber Flat	2735	1600	SH	1/7-4/27	1184
Johns, Kenneth	Moor Summit	11	80	CA	3/1-9/15	78
Keller, Clarence	Lead Hills	7930	3500	SH	11/1-4/15	3214
Johns, Blair	Chase Springs	2586	290	CA	4/1-11/30	1131
	Tobar	1317	200	CA	4/1-11/30	778
Lear, Louise	Currie	3777	560	CA	4/1-2/28	3664
			12	HORSE	3/1-12/31	115
	Bald Mountain	437	125	CA	6/1-9/15	438
Marrujo, Ken	Ruby #3	611	150	CA	4/16-8/15	611
Thomson, Thomas	Tobar	400	80	CA	5/1-9/30	NON USE
Peterson, L.W.	Whitehorse	7500	2200	SH	11/8-4/12	2146
Pritchett, Lee	Sugarloaf	3105	1875	SH	1/11-3/22	603
	Leppy Hills	3746	1425	SH	1/22-3/22	803
Rouse, Barb & W.E.	Snow Water					
	Lake	1160	180	CA	5/1-11/13	1165
Sharp Ranch	Ruby #5	1105	280	CA	5/1-9/15	1038
Smiley, J.M.	Smiley	492	235	CA	4/16-9/30	492
	Moor Summit	280	170	CA	4/16- 10/15	280

Smith, Bert & Paul	Ruby #7	1103	340	CA	5/16-9/30	1153
Sorensen, Loyd	Spruce	14,974	2500	SH	11/20-4/30	4340
			300	CA	11/20-5/31	
Sorensen, Von and Kenneth Jones	Spruce	14,508	3000	SH	11/9-6/30	7111
			500	CA	3/1-12/31	
Sorensen, Von and Marian	Spruce	6083	3000	SH	11/9-6/30	5929
			600	CA	11/21-6/5	
Sprado, Eric	North Butte Valley	1645	200	CA	5/1-11/30	682
Spratling, William (Contact P.U.)	Hylton	763	400	CA	4/15-8/15	1008
	Spratling	1014	200	CA	3/15-9/15	895
Taylor, Jack	Wood Hills	958	250	CA	5/15-6/15	
					8/1-11/30	145
U-3 Ranch, Co.	Clover Creek	342	70	CA	5/1-11/15	
Staley, Ray	W. Whitehorse	670	2000	SH	12/1-3/31	478
	Badlands	1407	2300	SH	12/9-4/6	820
Weatherly, Guy	Big Meadows	1155	300	CA	5/15-9/12	979
UX Livestock	Ruby #6	361	100	CA	5/1-9/30	
					11/1-11/30	344
	Ruby #8	1182	250	CA	4/15-9/30	1021
	Mayhew Creek	156	125	CA	5/1-5/30	127
	Kelly Field	27	60	CA	5/1--5/30	27
	Bennett Field	180	160	CA	5/15-9/15	154
Wines, Leonard	Ruby #8	785	270	CA	5/1-9/2	785
	Overland Creek	39	20	CA	6/15-8/31	NON USE
Wright, Stephen	Ruby #9	481	75	CA	11/7-4/30	317
	Forest	157	35	CA	5/15-8/15	52
	Maverick	1864	300	CA	5/1-10/31	1106
	Harrison	392	150	CA	4/15-6/25	
					9/20-12/31	418
Kippen, Charles	Utah-Nev. AMP	13,766	2600	SH	11/14-4/23	4048
	Pilot	0	2500	SH	11/12-3/15	2295
Neff Ranch	Ruby #5	572	125	CA	5/1-9/15	652
	Ruby #6	1268	350	CA	5/1-9/15	1001
Cordano Ranch	Currie	910				
Paris, Bertrand	W. Cherry Cr.	2661				
Robison, Reed	Badlands	1240				
	Antelope Vly.	5072				
Te-Moak Band of the Western Shoshone	Odgers	1596	180	CA	4/16-10/15	1190
	Bald Mtn.	736	95	CA	6/1-9/30	380

LIVESTOCK GRAZING
DEMAND FORECASTS AND DEPENDENCE

Economic Analysis-Local

Livestock production is a major industry within the Wells RA. At present there are a total of 379,314 AUMs authorized (grazing preference) on public land within the Wells RA. In the period between 1977 to 1980, livestock actually consumed an average of 279,054 AUMs, or 74 percent of preference in the Wells RA. The impact of the livestock grazing industry on the Elko County economy is shown in tables 3-24 and 3-25.

Cattle and sheep produced in the area are very often shipped out of the area for finishing. The typical rancher raises hay on his base property and supplements this with purchased feed in the winter. His cattle and sheep graze on BLM and Forest Service land throughout the remainder of the year (generally from about April 1 until September 1). Sheep grazing is generally carried out by operators who are based in Idaho or Utah and make seasonal trips into the area.

Ranches (including public land acreage in grazing allotments) in the area are large, with over 80 percent of the land in units of over 50,000 acres. In 1980, there were a total of 24 BLM ranch operators with more than 1,200 animal units months (AUMs); 21 operators with between 350 and 1,200 AUMs; and 26 operators with less than 350 AUMs (Table 3-26 compares total licensed AUMs in each BLM District in Nevada).

Public land furnishes approximately 25 to 30 percent of the total forage consumed in the Wells RA. Grazing on public land accounts for approximately 6 percent of the income and 4 percent of the employment in the resource area. These figures, however, seriously understate the importance of public lands to the livestock industry. The resource area is located a considerable distance from any demand centers; livestock production survives as an economic entity only because of the lower costs of grazing on public lands versus dependence on feedlot operations. A study of ranching operations in northern Nevada shows that one of the variables that ranchers are most sensitive to is the date that they can replace purchased feed with grazing on public lands.

Economic Role of Range Improvements

Ranchers in the Wells Resource Area (RA) face an uphill battle in making an adequate family income. Demand for the consumption of beef has not increased over the last few years and has, in fact, been decreasing since its 1976 high. Cattle prices are not significantly different today than they were following World War II, even though costs have increased dramatically. Table 3-27 shows the costs and returns for ranches of various sizes in northeast Nevada for 1981.

Since BLM has concluded (in recent environmental impact statements) that rangeland productivity must be preserved by controlling animal numbers, some form of compensation (other than direct income transfers, which are not well received by an independent ranching community) must be available which provides ranchers with an annual income sufficient to remain in the ranching

TABLE 3-24

SIGNIFICANCE OF ELKO COUNTY LIVESTOCK INDUSTRY 1978

	<u>County</u>	<u>Public Land</u>
Forage Consumption (AUMs)	2,244,000 ³	603,667 ³
Income ¹	\$5,748,000	\$1,546,291
Percent of County Income	6.2	1.7
Income Multiplier ²	2.10	2.10
Direct and Indirect Income	\$12,070,800	\$3,247,045
Employment ¹	800	215
Percent of County Employment	9.3	2.5
Employment Multiplier ²	1.803	1.803
Direct and Indirect Employment	1,442	388

¹Regional Economic Information System--Bureau of Economic Analysis.

²Multipliers from Water for Nevada, Input Output Model.

³BLM data--Elko District Office.

ELKO NEVADA

TABLE 3-25

INCOME AND EXPENDITURES
(THOUSANDS OF DOLLARS)

ITEM	1974	1975	1976	1977	1978	1979
CASH RECEIPTS FROM MARKETINGS	24,691	24,375	26,278	24,200	30,974	39,201
TOTAL LIVESTOCK AND PRODUCTS	23,837	23,412	25,223	23,070	29,991	37,980
MEAT ANIMALS AND OTHER LIVESTOCK	23,836	23,411	25,222	23,069	29,990	37,979
DAIRY PRODUCTS	0	0	0	0	0	0
POULTRY PRODUCTS	1	1	1	1	1	1
TOTAL CROPS	854	963	1,055	1,130	983	1,221
TRUCK CROPS AND MELONS	0	0	0	0	0	0
FRUITS, NUTS, AND BERRIES	0	0	0	0	0	0
GREENHOUSE AND NURSERY PRODUCTS	0	0	0	0	0	0
FOREST PRODUCTS	0	0	0	0	0	0
ALL OTHER CROPS	854	963	1,055	1,130	983	1,221
OTHER INCOME	3,077	2,653	3,008	3,510	4,234	3,936
GOVERNMENT PAYMENTS	49	142	281	681	913	176
IMPUTED INCOME AND RENT RECEIVED	3,028	2,511	2,727	2,829	3,321	3,760
PRODUCTION EXPENSES	24,017	26,338	28,106	29,918	34,539	41,832
FEED PURCHASED	2,953	2,497	2,751	2,324	2,571	3,404
LIVESTOCK PURCHASED	4,770	6,218	5,680	5,550	7,239	9,647
SEED PURCHASED	22	41	51	147	149	142
FERTILIZER AND LIME PURCHASED	315	335	349	287	330	351
PETROLEUM PRODUCTS PURCHASED	1,095	1,340	1,578	1,728	1,834	2,467
HIRED FARM LABOR EXCLUDING CONTRACT LABOR	3,956	4,142	4,508	5,195	5,870	6,344
CONTRACT LABOR, MACHINE HIRE + CUSTOM WORK	443	517	539	654	700	855
ALL OTHER PRODUCTION EXPENSES**	10,463	11,248	12,650	14,033	15,846	18,622
VALUE OF INVENTORY CHANGE	-918	-290	-3,063	-2,209	-949	2,733
DERIVATION OF FARM LABOR AND PROPRIETORS' INCOME:						

TOTAL CASH RECEIPTS AND OTHER INCOME	27,768	27,028	29,286	27,710	35,208	43,137
LESS: TOTAL PRODUCTION EXPENSES	24,017	26,338	28,106	29,918	34,539	41,832
REALIZED NET INCOME	3,751	690	1,180	-2,208	669	1,305
PLUS: VALUE OF INVENTORY CHANGE	-918	-290	-3,063	-2,209	-949	2,733
TOTAL NET INCOME INCLUDING CORPORATE FARMS	2,833	400	-1,883	-4,417	-280	4,038
LESS: CORPORATE FARM + STATISTICAL ADJUSTMENT***	832	358	-821	-1,166	181	1,264
TOTAL NET FARM PROPRIETORS'S INCOME	2,001	42	-1,062	-3,251	-461	2,774
PLUS: FARM WAGES AND PERQUISITES	4,060	4,250	4,619	5,334	6,018	6,511
PLUS: FARM OTHER LABOR INCOME	96	111	130	165	191	202
TOTAL FARM LABOR AND PROPRIETORS' INCOME	6,157	4,403	3,687	2,248	5,748	9,487

** INCLUDES REPAIR AND OPERATION OF CAPITAL ITEMS; DEPRECIATION, INTEREST, RENT, AND TAXES; AND OTHER MISCELLANEOUS EXPENSES.

***CONCEPTUALLY, CORPORATE FARM INCOME IS EXCLUDED—AND THUS SUBTRACTED—FROM TOTAL NET INCOME OF ALL FARMS IN DERIVING THE NET INCOME OF FARM PROPRIETORS. HOWEVER, DUE TO THE STATISTICAL ADJUSTMENT AS WELL AS TO THE METHOD USED IN ESTIMATING CORPORATE FARM INCOME AT THE STATE LEVEL, POSITIVE ADJUSTMENTS TO COUNTIES WITH NO CORPORATE FARMS MAY OCCUR.

APRIL 1981

REGIONAL ECONOMIC INFORMATION SYSTEM
BUREAU OF ECONOMIC ANALYSIS

TABLE 3-26
FORAGE PROVIDED

DISTRICT	FEE YEAR 1977		FEE YEAR 1978	
	NUMBER OF LICENSEES	ANIMAL UNIT MONTHS	NUMBER OF LICENSEES	ANIMAL UNIT MONTHS
Elko	187	574,192	183	603,667
Winnemucca	108	261,076	103	324,522
Carson City	91	165,709	105	209,508
Ely	120	277,889	124	253,621
Las Vegas				
Section 3	101	87,764	106	96,158
Section 15	19	38,852	19	43,144
Battle Mtn.	80	371,421	80	359,440
TOTALS	706	1,726,903	720	1,890,060

NUMBER OF LIVESTOCK AUTHORIZED TO GRAZE ON PUBLIC LANDS

DISTRICT	FEE YEAR 1977		FEE YEAR 1978	
	NUMBER OF CATTLE & HORSES	NUMBER OF SHEEP & GOATS	NUMBER OF CATTLE & HORSES	NUMBER OF SHEEP & GOATS
Elko	150,911	54,573	128,453	50,426
Winnemucca	62,111	10,712	64,636	10,970
Carson City	24,612	49,000	21,294	50,334
Ely	31,381	67,310	33,627	67,600
Las Vegas				
Section 3	12,439	5,730	12,884	9,600
Section 15	4,516	20	6,362	
Battle Mtn.	52,212	42,980	50,823	21,283
TOTALS	388,182	230,325	318,079	210,213

TABLE 3-27
COSTS AND RETURNS FOR RANCHES

Costs and Returns for Beef Herds of 0-199 Cows

Item	Unit	Number	Average weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	9	360	80.67	2,614
Heifer calves	Head	4	330	71.75	947
Yearling steers	Head	13	625	68.56	5,571
Yearling heifers	Head	4	550	64.95	1,429
Cull cows	Head	10	900	43.07	3,876
Cull Yrlng Heifers	Head	3	630	61.13	1,155
Total					15,592
Total/cow					210.70
Cash costs:			Total Value	Value/Cow	
BLM grazing fee			911	12.31	
Forest grazing fee			745	10.06	
Other BLM Grazing Fee			640	8.64	
State lease			--	--	
Hay (produce)			2,260	30.53	
Hay (purchase)			--	--	
Protein supplement			1,245	16.82	
Irrigated pasture			--	--	
Salt and mineral			130	1.75	
Concentrate feeds			--	--	
Veterinary and medicine			444	6.00	
Hired trucking			276	3.73	
Marketing			119	1.61	
Fuel and lubricants			845	11.41	
Repairs			828	11.18	
Taxes			2,283	30.86	
Insurance			444	5.99	
Interest on operating capital			586	7.92	
General farm overhead			663	8.96	
Other cash costs			--	--	
Hired labor			1,042	14.08	
Total cash costs			13,461	181.91	
Other costs:					
Family labor			2,083	28.15	
Depreciation			2,524	34.11	
Interest on investment other than land			7,910	106.89	
Interest on land			29,172	394.22	
Total other costs			41,689	563.36	
Total all costs			55,150	745.27	
Return above cash costs			2,131	28.80	
Return above cash costs and family labor			48	.65	
Return to total investment			-2,476	-33.46	
Return to land			-10,386	-140.35	

Average herd 74 cows, 80% calf crop based on Jan. 1 bred cow inventory, 6% calf loss birth to weaning, 3% annual cow loss, 20% replacement rate, 18 cows per bull, cattle and purchased hay prices 1978-80 three year averages, all other costs 1980, percent forage dependency Wells EIS Area 30%, other BLM 20%, National Forest 1%, decided range 25%, hay 22%, protein supplement 2%, real estate valued on an AU basis.

1/11/82

Costs and returns for beef herds of 200-499 cows

Item	Unit	Number	Average weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	48	360	80.67	13,940
Heifer calves	Head	24	330	71.75	5,683
Yearling steers	Head	71	625	68.56	30,424
Yearling heifers	Head	23	550	64.95	8,216
Cull cows	Head	44	900	43.07	17,056
Cull Yrlng Heifers	Head	10	630	61.13	3,851
Total					79,170
Total/cow					250.54

	Total Value	Value/Cow
Cash costs:		
BLM grazing fee	2,520	7.98
Forest grazing fee	333	1.05
Other BLM Grazing Fee	467	1.48
State lease	--	--
Hay (produce)	9,711	30.73
Hay (purchase)	--	--
Protein supplement	7,273	23.01
Irrigated pasture	--	--
Salt and mineral	553	1.75
Concentrate feeds	--	--
Veterinary and medicine	3,118	9.87
Hired trucking	1,938	6.13
Marketing	836	2.65
Fuel and lubricants	5,606	17.74
Repairs	5,018	15.88
Taxes	9,211	29.15
Insurance	1,925	6.09
Interest on operating capital	3,396	10.75
General farm overhead	4,656	14.73
Other cash costs	--	--
Hired labor	14,630	46.30
Total cash costs	71,191	225.29
Other costs:		
Family labor	7,313	23.14
Depreciation	12,453	39.41
Interest on investment other than land	34,616	109.54
Interest on land	115,815	366.50
Total other costs	170,197	538.60
Total all costs	241,388	763.89
Return above cash costs	7,979	25.25
Return above cash costs and family labor	666	2.11
Return to total investment	-11,787	-37.30
Return to land	-46,403	-146.84

Average herd 316 cows, 80% calf crop based on Jan. 1 bred cow inventory, 6% calf loss birth to weaning, 3% annual cow loss, 20% replacement rate, 18 cows per bull, cattle and purchased hay prices 1978-80 three year averages, all other costs 1980, percent forage dependency Wells EIS area 18%, other BLM 3%, National Forest 3%, deeded range 52%, hay 21%, protein supplement 3%, real estate valued on an AU basis.

1/11/82

Costs and returns for beef herds of 500-999 cows

Item	Unit	Number	Average weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	112	360	80.67	32,526
Heifer calves	Head	65	330	71.75	15,390
Yearling steers	Head	167	625	68.56	71,560
Yearling heifers	Head	65	550	64.95	23,220
Cull cows	Head	97	900	43.07	37,600
Cull Yrlng Heifers	Head	30	630	61.13	11,554
Total					191,850
Total/cow					258.21

Cash costs:	Total Value	Value/Cow
BLM grazing fee	6,226	8.38
Forest grazing fee	933	1.26
Private range lease/rent	6,849	9.22
Other BLM Grazing Fee	184	.25
Hay (produce)	22,816	30.71
Hay (purchase)	--	--
Protein supplement	18,946	25.50
Irrigated pasture	--	--
Salt and mineral	1,301	1.75
Concentrate feeds	--	--
Veterinary and medicine	4,458	6.00
Hired trucking	1,984	2.67
Marketing	1,984	2.67
Fuel and lubricants	8,182	11.01
Repairs	7,659	10.31
Taxes	19,156	25.78
Insurance	4,411	5.94
Interest on operating capital	6,798	9.15
General farm overhead	6,658	8.96
Other cash costs	--	--
Hired labor	20,927	28.17
Total cash costs	139,472	187.71
Other costs:		
Family labor	10,451	14.07
Depreciation	23,674	31.86
Interest on investment other than land	77,843	104.77
Interest on land	244,182	328.64
Total other costs	356,150	479.34
Total all costs	495,622	667.06
Return above cash costs	52,378	70.50
Return above cash costs and family labor	41,927	56.43
Return to total investment	18,253	24.57
Return to land	-59,590	-80.20

Average herd 743 cows, 80% calf crop based on Jan. 1 bred cow inventory, 6% calf loss birth to weaning, 3% annual cow loss, 20% replacement rate, 18 cows per bull, cattle and purchased hay prices 1978-80 three year averages, all other costs 1980, percent forage dependent Wells EIS area 20%, other BLM 1%, National Forest 3%, deeded range 47%, range lease 5%, hay 11%, protein supplement 3%, real estate valued on an AU basis.

1/11/82

Costs and returns for beef herds of more than 1,000 cows

Item	Unit	Number	Average weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	362	360	80.67	105,129
Heifer calves	Head	212	330	71.75	50,196
Yearling steers	Head	543	625	68.56	232,676
Yearling heifers	Head	212	550	64.95	75,732
Cull cows	Head	314	900	43.07	121,716
Cull Yrlng Heifers	Head	96	630	61.13	36,971
Total					622,420
Total/cow					258.37

Cash costs:	Total Value	Value/Cow
BLM grazing fee	19,222	7.98
Forest grazing fee	2,058	.85
Private range lease/rent	37,623	15.62
State lease	--	--
Hay (produce)	73,950	30.70
Hay (purchase)	--	--
Protein supplement	61,596	25.57
Irrigated pasture	--	--
Salt and mineral	4,215	1.75
Concentrate feeds	--	--
Veterinary and medicine	11,805	4.90
Hired trucking	1,120	.46
Marketing	3,361	1.40
Fuel and lubricants	13,003	5.40
Repairs	19,019	7.90
Taxes	55,822	23.17
Insurance	13,606	5.65
Interest on operating capital	20,192	8.38
General farm overhead	15,659	6.50
Other cash costs	--	--
Hired labor	46,095	19.13
Total cash costs	398,346	165.36

Other costs:		
Family labor	15,364	6.38
Depreciation	60,796	25.24
Interest on investment other than land	243,214	100.96
Interest on land	720,267	298.99
Total other costs	1,039,641	431.57
Total all costs	1,437,987	596.92
Return above cash costs	224,074	93.02
Return above cash costs and family labor	208,710	86.64
Return to total investment	147,914	61.40
Return to land	-95,300	-39.56

Average herd 2,409 cows, 80% calf crop based on Jan. 1 bred cow inventory, 6% calf loss birth to weaning, 3% annual cow loss, 20% replacement rate, 18 cows per bull, cattle and purchased hay prices 1978-80 three year averages, all other prices 1980, percent forage dependency sells EIS area 19%, National Forest 2%, deeded range 47%, range lease 8%, hay 21%, protein supplement 3%, real estate valued on an AU basis.

industry. In addition to artificially low grazing fees, this compensation can take the form of public rangeland improvement projects such as seedings, fencing, water developments, and vegetation manipulations. It is hoped these will ultimately permit ranchers to increase animal numbers, and thus annual incomes.

Range managers have learned much about making grazing lands more productive, but they must also acknowledge the fact that most of these lands have a relatively low capacity to absorb range improvements profitably. Benefits are difficult, at best, to quantify and justify in terms of the dollar costs involved in range improvements. Other factors may have to be considered on the benefit side of the cost/benefit analysis, such as preserving the stability of local ranching communities and encouraging the consumption of domestically produced beef verses foreign imports.

Economic Analysis-Regional and National

Elko County contains 30 percent of the cattle and sheep in Nevada. (Table 3-28 shows the percentages from 1954 to 1980). The Wells RA contains about 50 percent of the total sheep and cattle in the county.

Sheep have declined in the county as well as the state, with the decline occurring in the county faster than in the state. The decline in sheep has been caused by lower demand and the lower profit margin and return for investment in the sheep industry.

The relationship for cattle between the county and state has remained fairly stable. The decline in cattle in the county and in the resource area has been caused by drought conditions and a low return for investment. Table 3-29 shows the number of cattle and sheep per county for the years 1975 to 1980. Figure 3-3 illustrates the declines in the county.

While Elko County is a significant part of the livestock industry in Nevada, Nevada accounts for only 3 percent of the industry in the 11 western states.

Demand for livestock production is predicted to increase nationwide. The Socio-Economic Data System indicates that an increase in demand of 18 percent for cattle and 22 percent for sheep will occur in the resource area by 1990. Production of livestock in the area is limited now by drought conditions and the low return for investment. Unless land improvement projects substantially improve the carrying capacity of the range, local industry will not be able to keep pace with increasing national demand in future years.

There are no local market sales centers in the resource area. Most items needed in ranching are purchased out-of-state. Cattle are loaded on trucks and shipped out-of-state. Even the workers engaged in ranching purchase a large portion of their goods and services out-of-state.

Value of Grazing Permits

The market value of an animal unit month (AUM) in northern Nevada ranges from \$25 to \$60 per AUM, with a mean of about \$50 in northern Nevada (Falk 1980; .

TABLE 3-28
NUMBER OF CATTLE, CALVES, AND SHEEP ON FARMS, ELKO COUNTY

Cattle and Calves	1954	1959	1964	1969	1974	1980
Elko County	168563	151092	197435	171347	191380	180000
Nevada	555467	531022	609226	581067	632324	580000
% of Nevada	30%	28%	32%	29%	30%	31%
Sheep	1954	1959	1964	1969	1974	1980
Elko County	121695	90964	73169	66810	45669	30000
Nevada	311848	--	235350	208365	156384	122000
% of Nevada	39%		31%	32%	29%	25%

TABLE 3-29
CATTLE AND CALVES ON FARMS AND RANCHES BY COUNTIES,
NEVADA, JANUARY 1, 1975-80

County	1975	1976	1977	1978	1979	1980
	Number of Head					
Carson City	1,600	1,400	1,200	1,300	1,000	1,300
Churchill	64,000	65,000	54,000	56,000	57,000	56,000
Douglas	26,000	29,000	27,000	23,000	17,000	18,000
Humboldt	80,000	78,000	64,000	62,000	63,000	66,000
Lyon	43,000	42,000	38,000	34,000	35,000	44,000
Pershing	40,000	39,000	32,000	35,000	35,000	29,000
Storey	400	300	200	200	100	100
Washoe	27,000	30,000	26,000	23,000	23,000	28,000
Northwestern District	282,000	284,700	242,400	234,500	231,100	242,400
Elko	215,000	200,000	195,000	180,000	182,000	180,000
Eureka	33,000	33,000	34,000	34,000	34,000	33,000
Lander	35,000	34,000	36,000	31,000	26,000	28,000
White Pine	22,000	26,000	22,000	21,000	19,000	23,000
Northeastern District	305,000	293,000	287,000	266,000	261,000	264,000
Clark	13,000	15,000	16,000	17,000	14,000	15,000
Esmeralda	6,000	6,300	6,000	6,400	7,000	6,500
Lincoln	16,000	18,000	17,000	16,100	16,200	16,400
Mineral	3,000	4,000	3,600	3,000	2,700	3,700
Nye	32,000	30,000	28,000	27,000	28,000	32,000
Southern District	70,000	73,300	70,600	69,500	67,900	73,600
Nevada Totals	657,000	651,000	600,000	570,000	560,000	580,000

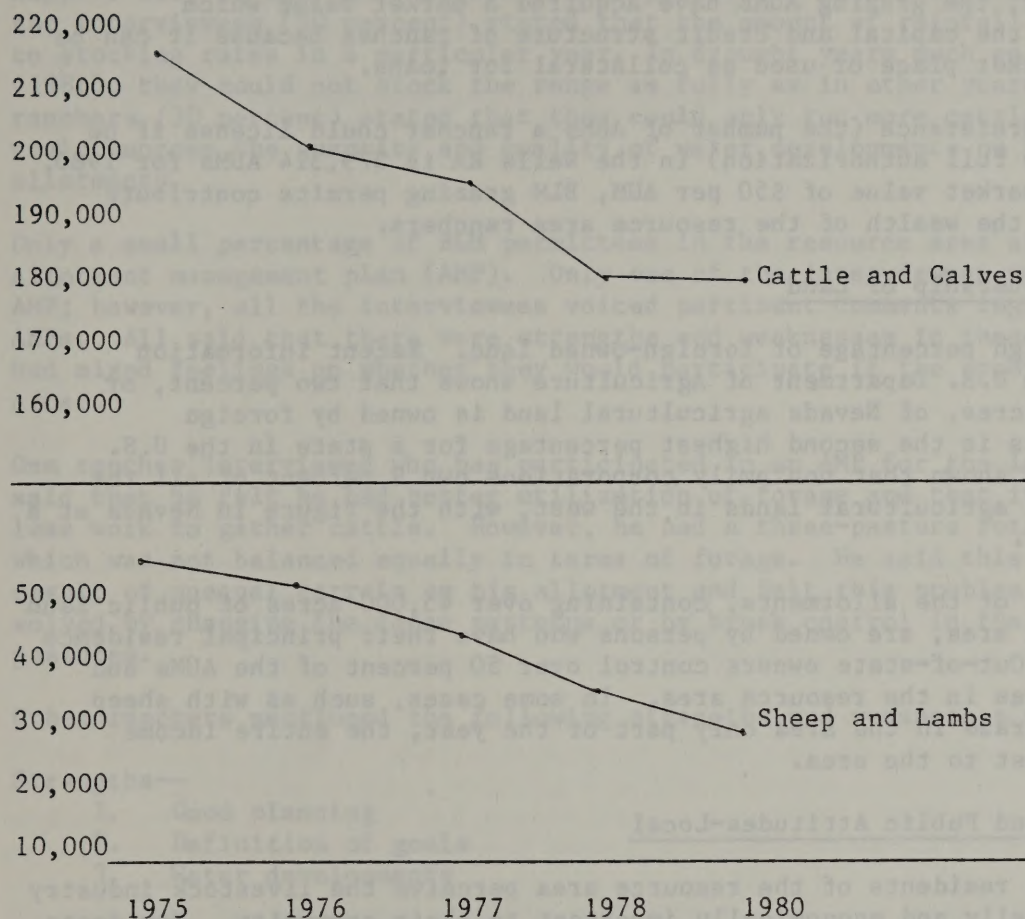
SHEEP AND LAMBS ON FARMS AND RANCHES, BY COUNTIES
NEVADA, JANUARY 1, 1975-80

County	1975	1976	1977	1978	1979	1980
	Number of Head					
Carson City	3,400	3,000	2,000	2,000	2,000	3,000
Churchill	6,000	5,000	4,000	3,000	3,000	2,500
Douglas	5,200	6,000	6,000	10,000	7,000	7,500
Elko	54,000	51,000	45,000	35,000	37,000	30,000
Eureka	9,900	9,400	8,400	4,700	5,300	7,800
Humboldt	3,000	4,000	4,000	6,000	5,000	6,000
Lander	2,000	3,000	3,000	5,000	5,500	4,500
Lyon	13,000	14,000	14,000	11,000	10,000	9,500
Nye	5,000	4,600	4,100	3,800	4,600	10,500
Pershing	17,000	17,000	13,000	6,000	6,000	10,000
Washoe	3,000	4,500	3,000	3,000	5,000	3,000
White Pine	29,000	31,000	26,000	24,000	23,000	27,000
All Other	500	500	500	500	600	700
Nevada Totals	151,000	153,000	133,000	114,000	114,000	122,000

FIGURE 3-3

Regional Trend for Domestic Livestock in Elko County

From 1975 to 1980



Calender 1980). The market value of Federal AUMs is generally higher in northern Nevada than in the southern part of the state because of higher range productivity. Market value is also affected by the number of range improvements, availability of water, and dependence on Federal AUMs, as well as by whether an allotment is grazed in common or by a single permittee.

It should be noted that BLM does not recognize the right to treat grazing permits as real property. A grazing permit is a revocable privilege and not a right. However, the grazing AUMs have acquired a market value which contributes to the capital and credit structure of ranches because it can be sold in the market place or used as collateral for loans.

Total grazing preference (the number of AUMs a rancher could license if he were to use his full authorization) in the Wells RA is 379,314 AUMs for 1980. At an average market value of \$50 per AUM, BLM grazing permits contribute \$18,965,700 to the wealth of the resource area ranchers.

Out-of-State Ownership of Land

Nevada has a high percentage of foreign-owned land. Recent information supplied by the U.S. Department of Agriculture shows that two percent, or about 180,000 acres, of Nevada agricultural land is owned by foreign investors. This is the second highest percentage for a state in the U.S. Statistics also shown that nonfamily corporations own 9 percent of all the privately owned agricultural lands in the west, with the figure in Nevada at a high 33 percent.

Seventy percent of the allotments, containing over 45,000 acres of public land in the resource area, are owned by persons who have their principal residence out-of-state. Out-of-state owners control over 50 percent of the AUMs and public land acres in the resource area. In some cases, such as with sheep operators who graze in the area only part of the year, the entire income generated is lost to the area.

Social Values and Public Attitudes-Local

In general, the residents of the resource area perceive the livestock industry to be both socially and economically important to their community. Residents are very aware that public lands support the livestock industry in Nevada. In fact, 90 percent of the persons interviewed for the social analysis mentioned ranching as the number one industry associated with public lands. Mining and recreation were next in order.

The ranchers who were interviewed place a high value on the lifestyle associated with ranching. All the ranchers interviewed said that they liked ranching and would not consider leaving ranching unless they went bankrupt or suffered a physical debilitation. Most of the ranchers come from generations of ranchers and they felt that another way of life would be difficult at best. Ranching is also viewed by ranchers as being good for family life. In fact, many ranchers in the resource area are totally family operated.

All the ranchers interviewed thought range forage was in an improving condition. They thought that the range had been overgrazed in the late 1800's

or in the 1930's but that, in past years, grazing pressure has been lessened and range forage production has been improving. The general opinion was that the range was in poor condition in certain areas and average or good in others.

The ranchers all said that they would not run more cattle on their BLM allotments, even if they were allowed to. They were aware that the land can support only so many cows before forage production starts to decline. Many of the interviewees (50 percent) stated that the amount of rainfall was the key to stocking rates in a particular year. In drought years much as this one (1981), they could not stock the range as fully as in other years. Some ranchers (30 percent) stated that they could only run more cattle only if they could improve the quantity and quality of water developments on their allotments.

Only a small percentage of BLM permittees in the resource area are under a BLM allotment management plan (AMP). Only one of the interviewees was under a BLM AMP; however, all the interviewees voiced pertinent comments regarding BLM AMPs. All said that there were strengths and weaknesses in these plans. They had mixed feelings on whether they would participate if the opportunity arose.

One rancher interviewed who has participated in an AMP for the last 10 years said that he felt he had better utilization of forage and that it required less work to gather cattle. However, he had a three-pasture rotation plan which was not balanced equally in terms of forage. He said this is mainly the result of unequal terrain on his allotment and felt this problem could be solved by changing the fence patterns or by brush control in the smaller pastures.

Other ranchers mentioned the following strengths and weaknesses of AMPs:

Strengths--

1. Good planning
2. Definition of goals
3. Water developments

Weaknesses--

1. Too many restrictions with fences
2. Not flexible
3. Vulnerable to political change

One veteran rancher said that AMPs had not been too successful. He thought the reason might be that "these new college kids working for BLM try to set these plans up, but they really don't have the long-time experience to know what they are doing."

All of the ranchers interviewed for the social analysis indicated a desire for more range improvements. Improvements mentioned most were water developments, fencing, and seedings. A few ranchers felt that most range improvement work had been held up pending the outcome of the range inventory and the EIS.

All of the ranchers interviewed indicated that they would be willing to share the costs of future range improvements. Some ranchers mentioned, however, that they would like some long-term security agreements or assurance for any future investments. They said that BLM policies and management changed frequently, making them hesitant to invest in range improvement.

The "Sagebrush Rebellion" has taken on national significance within the last few years. Area residents have mixed feelings about this movement. The ranchers who were interviewed generally were in favor of the sagebrush rebellion and felt that state ownership of public lands would be less bureaucratic and more responsive to their needs. Others voiced concerns that state or private ownership would see the land developers move in, with a subsequent loss of use by the public.

LIVESTOCK GRAZING
SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT

Forage Production

Areas where trend is downward will be unable to sustain current levels of production under present season of use and/or livestock numbers and distribution patterns.

Areas where forage condition is low to moderate and trend is static may be able to sustain current levels of production but will not be able to improve to their potential without a change in season of use and/or livestock numbers and distribution.

Areas with upward trend can be expected to increase in production, with the extent of the increase depending on the current condition and potential of the area.

Role of Range Improvements

Many areas in the Wells RA are without naturally occurring water available to livestock. The only water sources are wells or pipelines, or water which has been hauled in, a process which is expensive and time consuming.

Without additional fencing, livestock control and uniform use of available forage are extremely difficult to accomplish. In many instances, fencing along with water development is the only practical way to provide efficient operation of a grazing management system designed to improve productivity.

Seedings can provide a large increase in forage production on deteriorated sites with low natural rehabilitation potential and can provide feed during the critical spring growing period of native species. Seedings thus increase production of the site on which they are established while being used as a management tool to provide needed rest for natural recovery of native range.

Relationship Between Range Improvements Levels of Forage Production

Those allotments in the Wells RA under some type of grazing management system (approximately 20 percent of the total acreage) can sustain current levels of use with existing management and range improvements. Most of the allotments in the remaining 80 percent of the area not under a grazing management system have varying degrees of deterioration over portions of the allotment.

This is a result of use every year during the critical growth period and concentrations of livestock on portions of these allotments due to a lack of adequate water and fencing and the absence of a grazing management system.

Many of these allotments thus have some areas where use is extremely heavy, while other areas receive little or no use. Given current management and the inadequate number of existing range improvements, current levels of use cannot be sustained.

Existing Range Improvements: Problems and Degrees of Use

For a discussion of problems and degrees of use of range improvements, refer to the Developments section of the Currie and Contact URA Step 2.

Maintenance Requirements of Range Improvements

Fences will generally last 30 years, with varying degrees of maintenance required every 3 to 5 years. In areas of the district with substantial herds of wild horses, maintenance is needed more frequently and repairs are more extensive.

Generally, wells are drilled by BLM, with pumping equipment furnished by the operator. The need for cleaning of the well casing itself varies greatly, depending on the type of formation in which the well is drilled. Wells in unstable formations may need to be cleaned every few years, while others have been producing water since the 1920's with no maintenance.

Pipelines must be drained each year to avoid damage due to freezing.

Depending on the initial kill of sagebrush, crested wheatgrass seedings require a maintenance burn or spray after 10 to 20 years.

VEGETATION EXISTING SITUATION

Current Management Requirements and Constraints

Congress has established guidelines which direct the Bureau to preserve and protect certain wildlife habitat in its natural condition (FLPMA 1976 PL-94-597 Section 102a(8)). Presidential orders have also established strong programs for the conservation of wetland-riparian areas (E.O. 11990 and 11988, 1977). The Bureau has issued manual guidance on the procedures for the identification, protection, maintenance, enhancement, and management of wetland-riparian areas (BLM Manuals 6740, 6670, 6671, and 6820).

As far as can be determined without extensive research, the Bureau's program and policies for wetland, riparian, and stream habitat are consistent with the policies, plans, and programs of other agencies.

One possible constraint or influence on Bureau wetland, riparian, and stream habitat management involves local political considerations. The local community generally does not understand that much of the fish and wildlife in this area is being substantially limited by deteriorated wetland, riparian, and stream habitat. Ranchers, miners, and other segments of the local community may, therefore, tend to initially oppose some proposals for protection or improvement of these areas if they perceive that the proposals might restrict them.

Threatened and Endangered Plant Species

The Federal Register states that plants listed as candidates for listing should be given consideration in environmental planning. Whether they should be given the same consideration as though they were officially listed is not clear. There is no official policy with regard to other species listed.

Unofficially, it is felt that projects, e.g., pipelines or herbicide treatment, should not be done in such a way as to destroy any individuals of a candidate species. The removal of even one individual from any of these populations would be detrimental. Grazing does not seem to be having any harmful effect on any of these species.

The state of Nevada has declared Eriogonum argophyllum to be "critically endangered." As such, it enjoys complete protection. According to NRS 527.270: "Any species declared to be threatened with extinction shall be placed on the list of fully protected species, and no member of its kind may be removed or destroyed at any time by any means except under special permit issued by the state forester firewarden." Eriogonum argophyllum is the only species so protected in the Wells RA.

The Nevada State Museum has published a "Threatened and Endangered Plant Map Handbook" that lists all of the species in the resource area except M. g. var. depressa. The state, however, has no known policy for protection of these species except for E. argophyllum. Literature surveys and/or field searches should be conducted for these plants before any projects are undertaken.

Description of Environment

Wetland-Riparian Ecosystems

Wetland-riparian ecosystems have high water tables. These areas are most commonly recognized by their bottomland, floodplain, and streambank vegetation. They are characterized by the combination of high species diversity, species densities, and productivity.

Wetland-riparian areas represent much less than one percent of the land within the planning area. However, the majority of wildlife species either depend on these areas or use them more than any other habitat type. Wetland-riparian areas also play an essential role in determining the quality of the aquatic habitat for fish resources.

Riparian areas accommodate and attract important recreational activities, including hunting, fishing, camping, and hiking. The aesthetic value is high because of the pleasing combination of land and water, an attractive and unique variety of vegetation types, and the abundance of animal life.

The stream inventory evaluated a total of 451 miles and 11,413 acres of riparian vegetation, of which 220 miles and 5,928 acres were on BLM-administered land. Of the BLM-administered segments, 161 miles and 4,350 acres, or 73.3 percent, were rated in poor or fair condition. Table 3-30 lists the miles, acreages, and ratings for each stream inventoried. More detailed information and analyses are available in individual inventory reports.

TABLE 3-30
RIPARIAN INFORMATION ON INVENTORIED STREAMS

Water Name	Location		Land Status of		Riparian Condition Overall	Riparian Vegetation				
			miles inventoried			Total Public Acres	Percent < Good	Public acres < Good	Public miles < Good	
			private	public						
Contact Planning Unit										
Bear Creek	T47N	R62E	2.1	2.1	77.2	Excel	32.0	0	0	0
Bishop Creek	T39N	R62E	0	3.0	70.4	Excel	19.2	50	10.0	1.5
Bull Camp Creek	T42N	R63E	3.3	8.2	66.7	Good	114.1	50	57.0	4.1
Camp Creek	T44N	R61E	6.9	9.1	33.4	Poor	782.9	100	782.9	9.1
Canyon Creek	T45N	R61E	5.5	12.9	53.2	Fair	125.6	59	74.0	7.6
Chimney Creek	T43N	R59E	0.5	5.0	46.4	Poor	29.1	86	25.0	4.3
Conner Creek	T40N	R59E	2.5	4.5	66.1	Good	135.8	33	45.0	1.5
Cottonwood Creek (O'Neil)	T44N	R61E	3.0	15	35.8	Poor	80.0	58	46.0	7.3
Cottonwood Creek (Jackpot)	T47N	R64E	5.9	9.1	51.6	Fair	508.9	100	508.9	10.9
Currant Creek	T42N	R60E	11.6	0.9	62.1	Good	6.5	100	6.5	0.9
"Cutt" Creek	T43N	R58E	4.75	0.25	33.3	Poor	2.2	100	2.2	0.3
Deer Creek East	T43N	R61E	1.3	3.2	74.0	Excel	72.8	25	18.0	0.8
Deer Creek M.	T43N	R61E	3.8	2.4	65.8	Good	34.7	33	11.6	0.8
Deer Creek West	T43N	R61E	0.8	4.7	61.4	Good	32.8	20	7.0	0.9
Donner Creek	T37N	R70E	0.8	1.3	85.7	Excel	19.8	0	0	0
Draw Creek	T43N	R59E	0.25	3.25	42.2	Poor	29.7	75	22	0.8
Dry Creek	T42N	R62E	0.9	1.3	55.0	Fair	7.6	50	3.8	0.8
Goose Creek	T47N	R70E	25	2.5	46.3	Poor	12.0	100	12.0	2.5
Hanks Creek	T41N	R60E	6.5	12.5	42.6	Poor	193.6	75	145.0	9.2
Hot Creek	T43N	R60E	2	1.5	41.8	Poor	2.7	100	2.7	1.5
Jakes Creek	T43N	R62E	4	13.4	63.6	Good	88.7	86	76.0	11.5
Johnson Creek	T36N	R63E	3.9	0.5	54.4	Fair	5.8	57	4.0	0.3
Little Goose Creek	T46N	R68E	4.9	2.8	33.5	Poor	7.0	100	7.0	2.8
Marys River	T42N	R60E	13.5	5.5	37.6	Poor	203.5	86	175.0	4.7

TABLE 3-30 (Cont'd)
RIPARIAN INFORMATION ON INVENTORIED STREAMS

		Land Status of		Riparian	Riparian Vegetation				
Water		miles inventoried		Condition		Total		Public	Public
Name	Location	private	public	Overall		Public	Percent	acres	miles
						Acres	< Good	< Good	< Good
Piney Creek	T47N R68E	2.0	1.0	47.8	Poor	4.3	100	4.3	1.0
Pole Creek	T40N R61E	5.8	2.2	36.6	Poor	7.0	100	7.0	2.2
Pole Creek	T45N R61E	0.1	6.0	51.4	Fair	126	70	88.0	4.2
Salmon Falls	T47N R64E	19.5	22.5	44.3	Poor	99.5	11.0	11.0	1.0
(main & south fork)									
Salmon Falls N. FK.	T45N R62E	8.2	9.3	69.6	Good	2270.1	74.0	1680.0	16.5
Shack Creek	T47N R62E	0.4	3.3	52.8	Fair	57.1	71.0	41.0	2.3
Shell Creek	T47N R62E	1.9	5.5	53.6	Fair	27.0	71.0	19.0	3.9
Shoshone Creek	T47N R64E	8.7	3.6	42.6	Poor	26.3	100	26.3	3.6
Sun Creek	T44N R61E	10.4	5.6	49.6	Poor	295.7	60.0	177.0	3.4
T Creek	T42N R60E	10.8	6.3	59.9	Fair	207.3	40.0	83.0	2.5
Tabor Creek	T40N R60E	12.0	4.5	54.0	Fair	22.7	67.0	15.0	3.0
Trout Creek	T39N R62E	3.1	0.4	38.9	Poor	3.6	100	3.6	1.3
Trout Creek	T45N R65E	15.3	2.5	37.6	Poor	6.3	100	6.3	1.1
Trout Creek	T47N R69E	4.0	3.5	39.8	Poor	20.9	100	20.9	8.3
Wildcat Creek	T43N R60E	5.5	0.5	33.3	Poor	3.0	100	3.0	0.5
Willow Creek	T46N R62E		2.0	52.8	Fair	12.8	100	12.8	2.0
Wilson/Lime Creek	T46N R62E	2.0	3.4	73.8	Excel	76.6	0	0	0
<u>Currie Planning Unit</u>									
McDermitt Creek	T26N R63E	3.3	2.0	46.3	Poor	24.1	100	24.1	2.0
Odgers Creek	T27N R62E		10.0	28.9	Poor	76.8	100	76.8	10.0
Phalen Creek	T29N R63E	2.0	0.1	44.4	Poor	1.5	100	1.5	0.1
Taylor Creek	T27N R62E	2.1	2.0	65.4	Good	12.5	60	8.0	1.2
TOTALS		230.9	221.2			5,928.1		4350.2	154.2

The riparian habitat condition rating is derived from an average of ratings for streambank vegetation cover and streambank stability. This rating is expressed as a percentage of optimum and is classified just as the overall aquatic habitat condition rating is for wildlife. The resulting rating of excellent, good, fair, or poor corresponds to classes I, II, III and IV, respectively, in Appendix 1 of BLM Manual 6740.

The analysis of limiting factors in each stream inventory report concluded that, in most cases, livestock grazing was primarily responsible for producing and maintaining deteriorated riparian habitat conditions.

Impacts associated with mining, roads, diversions, and channelization are also important on some streams. See the habitat conflicts discussion in the wildlife section for a more detailed analysis of impacts and their importance to the fisheries resource. In addition, individual inventory reports and, for grazing impacts, study reports for the West Fork of Deer Creek and Tabor Creek can be referenced for further information.

Threatened and Endangered Plant Species

In the Wells RA, there are no federally listed threatened or endangered plants. There are, however, six species of plants that have been listed in the Federal Register (Vol. 45, No. 242, 15 December 1980) as candidates for addition to the list of endangered and threatened plants:

<u>Scientific Name</u>	<u>Common Name</u>
<u>Astragalus lentiginosus</u> var. <u>latus</u>	None
<u>Coryphantha vivipara</u> var. <u>rosea</u>	None
<u>Eriogonum argophyllum</u>	Wild buckwheat
<u>Lepidium nanum</u>	None
<u>Sclerocactus pubispinus</u>	Great Basin fishhook cactus
<u>Thelypodium sagittatum</u> var. <u>ovalifolium</u>	None

There are also four species which have been listed as species of special concern by the 1980 T/E Plant Workshop. They are:

<u>Scientific Name</u>	<u>Common Name</u>
<u>Cryptantha interrupta</u>	None
<u>Haplopappus watsonii</u>	None
<u>Machaeranthera grindelioides</u> var. <u>depressa</u>	None
<u>Opuntia pulchella</u>	Sand cholla

VEGETATION
DEMAND FORECASTS AND DEPENDENCE

Wetland-Riparian Areas

The nonconsumptive demands for fish and the existing and projected fishing demands were discussed under the wildlife issue. That discussion also applies here under wetland-riparian areas because these areas are key components in determining the fisheries habitat condition.

Wetland-riparian areas provide important recreation areas for activities such as hunting, fishing, hiking, picnicking, camping, and sightseeing. One primary reason that people are attracted to these areas is the aesthetic enjoyment associated with the pleasing combination of land and water, an attractive and unique variety of vegetation types, and the abundance of animal life. The aesthetic values tend to be intangible and defy application of monetary standards to define their worth. These values, however, are real and very similar to those we attribute to good music, art, and architecture, which command high prices in the market place.

The Elko County General Plan emphasizes the importance of preserving open space. "These vacant areas are intended to balance the tendency to urbanization and to preserve the original environment so as to permit continued enjoyment of 'native' Nevada."

The outdoor experience appears to be highly important to people in Nevada. The deterioration or loss of important wetland-riparian areas, therefore, would have negative impacts on the enjoyment associated with these aesthetic values, and this social need would, to some degree, be less satisfied.

Conversely, improvements in riparian areas would correspondingly satisfy more of this need and for more people. If people were aware of the degree of improvement possible in wetland-riparian areas over their present condition, as illustrated in photos of the Deer Creek and Tabor Creek exclosures, many of them would undoubtedly be very supportive of proposals to improve riparian habitat.

Threatened and Endangered Plant Species

There is no known demand for the harvest of any candidate species in the Wells RA.

VEGETATION
SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT

Wetland-Riparian Areas

As discussed under the wildlife section, the existing stream resources are not even meeting existing demand for "quality" stream fishing. Due to continued habitat deterioration, even the existing level of fishing effort cannot be sustained. This discussion also applies to wetland-riparian areas because these areas are key components in determining the fisheries habitat condition. If BLM allows the deterioration to continue, it will be in noncompliance with the Endangered Species Act and the Federal Land Policy and Management Act.

Because wetland-riparian areas are so critical to fisheries and wildlife, one of the RMP's planning criteria calls for the management of these areas to improve them to, or maintain them in, at least a good condition class. This is in accordance with requirements in BLM Manual 6740. To achieve this requirement, special management will be necessary on the more than 73 percent of stream riparian habitat which occurs on BLM-administered lands (161 miles and 4,370 acres).

Threatened and Endangered Plant Species

Current practice is to conduct literature surveys, and field searches deemed as necessary, prior to implementing any range improvement projects or allowing any other ground/vegetation disturbing activities, e.g., mining operations, road or powerline construction, etc. If this policy continues, threatened and endangered plant species should continue to survive at current levels, assuming other factors remain equal.

MINERALS EXISTING SITUATION

Overlays were drawn which show areas of high, good, and low or unknown potential for mineral development in the next 10 years. Boundaries are subject to change as new data are received. Areas were drawn on the basis of the Wells Mineral Resource Inventory, existing mining claims, mining districts, geologic inference, and geologic reference.

Also shown on the overlays are active and inactive mines which could open at any time; oil and gas wildcat drilling sites; and lands prospectively valuable for geothermal resources, areas of active geothermal exploration, and geothermal leases.

Current Management Requirements and Constraints

Locatable Minerals

Implementation of the Surface Management Regulations (43 CFR 3809) resulted in 13 "notices" and 1 "plan of operation" (POO) being filed in the Wells RA during FY 81. The intent of the regulations is to prevent "undue degradation" of the public lands. Interpretations as to what constitutes "undue degradation" vary widely. In light of the current political situation and lack of definition in the 43 CFR 3809 regulations, it would be advisable to closely examine reclamation measures required by the BLM on major POOs.

Oil and Gas

Current regulation and policy holds that all areas, except those specifically withdrawn, be leased by BLM with appropriate stipulations to protect various resources or values. Stipulations on oil and gas leases range from inventory requirements for cultural resources and time of year restrictions for wildlife to no surface occupancy for wilderness study areas. Numerous areas are currently leased for oil and gas. However, no effort was made to document the current situation since changes occur on a weekly basis.

Geothermal

Recent proposals to greatly increase acreage permitted geothermal leasees and other regulatory changes may result in increased geothermal leasing and exploration in the Wells RA. Enactment of these changes is considered almost certain.

Under existing regulations, a company can only lease 21,480 acres per state. The new acreage limit will be 51,200. These regulatory changes should increase geothermal exploration in the Wells RA. However, the number of companies with the resources to conduct widespread exploration activities is limited.

Other Federal Agencies

The U.S. Geological Survey (USGS), Conservation Division has the lead responsibility when applications for a permit to drill (APDs) wildcat oilwells are filed. BLM provides surface protection and reclamation measures to USGS for inclusion in the permit. A similar procedure is followed for geothermal drilling at depths greater than 500 feet.

A working relationship is maintained with the U.S. Forest Service to expedite various activities which impact both BLM and Forest Service administered lands.

State Agencies

A working relationship is maintained with the Nevada Bureau of Mines and Geology. Input on the mineral character of various parcels of BLM land slated for disposal has been requested. A Mineral Resource Inventory of the Wells RA has been done by the Nevada Bureau of Mines and Geology under contract to BLM.

Description of Environment

Locatable Minerals

Critical and strategic minerals are listed in table 3-31. Identified and potential reserves of critical and/or strategic minerals in the Wells RA are also indicated.

TABLE 3-31
CRITICAL AND STRATEGIC MINERALS

<u>Critical</u>	<u>Strategic</u>	
Chromium	Aluminum	Tin ²
Cobalt	Columbium	Titanium
Manganese ²	Copper ¹	Tungsten ¹
Platinum group	Lead ¹	Vanadium ²
	Nickel	Zinc ¹

¹Identified mineral reserves in the Wells RA

²Potential mineral resources in Wells RA

The lack of production of identified mineral resources in the Wells RA is chiefly related to economic or technological problems. A technological breakthrough or increase in the price of identified reserves could result in new mining activities.

Critical and/or strategic minerals not shown as identified or potential reserves in table 3-31 are not likely to be mined in the Wells RA in the foreseeable future.

Active mines total 13, most of which have some kind of associated mill. Two small custom tungsten mills are also currently operating. By far the most important mineral mined is barite. Also mined are tungsten, copper, silver, and molybdenum. Mineral exploration is active, with the Snake Range as a major target area.

Currently, hundreds of new mining claims are being staked each year in the Wells RA. Most townships have at least a few mining claims, with some townships being virtually blanketed.

Oil and Gas

Geophysical exploration for oil and gas has been quite active in the Wells RA in the last few years, with an average of 15 to 20 notices of intent (NOIs) to conduct oil and gas exploration being filed each year. Oil and gas leasing has also been active, with about 100 leases per year being issued.

The Wells RA has a long history of unproductive oil and gas wildcat drilling (see overlay for locations). However, interest remains high, as evidenced by the magnitude of exploration efforts. Much of the area is unexplored, with exploration efforts centering mostly in valley and foothill regions.

Recent oil and gas discoveries in central Nevada have sparked additional interest throughout the state. Exploration activities are expected to continue at current levels.

Geothermal

Geothermal exploration (temperature gradient holes) has been conducted north of Deeth and in Ruby Valley on leases (see overlays). Only minor geothermal exploration has been done in the remainder of the Wells RA.

The potential for development of geothermal resources is high in the resource area. Unusually high crustal heat flow is present in the Wells RA and can result in high temperatures at a shallow depth. Evidence of the high heat flow is seen in the numerous hot springs.

MINERALS

DEMAND FORECASTS AND DEPENDENCE

Locatable Minerals

U.S. dependence on foreign imports for the minerals listed in table 3-32 ranges from about 35 to 100 percent of annual consumption.

In a free market system, demand is reflected in the price obtained for a given commodity. In general, an increase in demand will result in price increases until supply meets or exceeds demand. These principles are reflected in the copper and barite industries in the Wells RA.

An excess of copper production worldwide depressed prices to a level at which it became unprofitable for copper mining to continue at the Victoria Mine.

A tremendous increase in oil and gas drilling in the U.S. has increased demand for barite, resulting in a steady increase in its price. Since Nevada supplies over 80 percent of the barite consumed in the U.S. it is expected that the barite mining industry in the Wells RA will remain healthy. Major new discoveries of barite are likely to occur in the Wells RA, most probably in the Snake Range.

In the somewhat unlikely event that the current soft market for lead and zinc reverses, and if results of ongoing exploration efforts are successful, development of new deposits could occur.

The potential for gold and silver production is high. Gold and silver are currently not being produced in the Wells RA.

Tungsten exploration and mining has been increasing and demand is high. It can be assumed that two or three small to medium sized mines will be developed in the next 10 years.

Oil and Gas

Given the current world situation, there is a considerable demand for oil and gas. The more pertinent issue is whether any economic concentrations of oil and/or gas exist in the Wells RA.

Past exploration results have been poor. Although exploration continues at a brisk pace, it must be concluded that only a slight chance exists for the discovery of economic quantities of oil and/or gas in the Wells RA in the immediate future. However, in the event of any significant discovery, a tremendous increase in activities affecting BLM is anticipated.

Geothermal

In general, alternate sources of energy to replace fossil fuels will be increasingly in demand in the U.S.

Development of geothermal resources in the Wells RA will probably be a long, slow process. Major obstacles to the development of geothermal power plants in the resource area are the distances from markets and difficulty in marketing the product.

Small-scale, direct-use applications of hot water are quite practical and may be the most likely geothermal developments in the near future.

Economic Analysis-Local

Locatable Minerals

Any significant impact on employment, population, and income from mineral development is likely to come from locatable minerals. Salable and leasable minerals have not been, and are not projected to be, significant in the area. See Table 3-32 for estimated future mineral production in Elko County.

Even if new mineral development occurred on an old patented claim, the industry would likely be dependent upon public lands for mill sites, rights-of-way, etc.. The industry is highly dependent on public lands for exploration and development of new mineral resources (76 percent of the land is public within the Wells RA).

In a sparsely populated area such as the Wells RA, local communities have the potential for being highly dependent on mine development for local population, employment, and income. The size of the mining operation and the location of the mineral development in relationship to the existing community are the most significant factors related to community dependence.

In the Wells RA, there are 13 active mines. The Victoria copper mine (which closed this year) is the only mine that might be classified as medium sized, with 60 workers employed at full production. The remainder of the mines would be classified as small operations, with 2 to 18 workers. The 12 small mining operations in the area consist of 9 barite mines, 2 tungsten mines, and 1 copper and molybdenum mine. See Table 3-33 for number of mines, mills, and smelters in operation and number of employees by county in Nevada.

The barite mines and mills in the area are located in remote areas, with the closest impacted towns being Wells, Nevada; Jackpot, Nevada; and Twin Falls, Idaho. The two barite mills--the Aslett Barite Mill and the Chromalloy Dry Creek Mill--support 8 barite mines in the area. Usually two or three of these mines are in production at the same time.

The total expenditures for the Chromalloy Mining Company were \$5,750,000 for 1979 and \$7,350,000 for 1980. Of the \$7,350,000 in expenditures for 1980, \$750,000 was for payrolls and \$4,200,000 was spent for contracted barite ore. About half of the contractors' \$4,200,000 would be spent on payrolls in the area.

TABLE 3-32

ELKO COUNTY ESTIMATED FUTURE MINERAL PRODUCTION STATISTICS

Commodity and Units	No. of Mines	Quantity	New Water Requirement Millions of Gallons	Water Consumed Millions of Gallons	Number of Persons Employed	Value at 1970 Prices Thousands of Dollars
1970						
Copper, Sand and Gravel*						
1970 TOTAL	2		54	17	8	360
1980						
Copper, tons	1	6,000	3,516	1,308	180	6,960
Tungsten, tons	1	400	130	68	80	2,800
Vanadium, tons	1	1,500	546	198	75	10,800
Barite, tons	2	100,000	86	45	50	750
Sand and Gravel, tons	1	354,000	29	9	7	334
1980 TOTAL	6		4,607	1,628	392	21,644
2000						
Beryllium, tons	1	100	49	26	30	1,520
Copper, tons	2	8,000	7,053	1,744	240	9,780
Tungsten, tons	1	800	260	136	160	5,600
Uranium, tons U ₃ O ₈	1	50	81	35	50	600
Vanadium, tons	1	2,000	723	264	100	14,400
Barite, tons	3	150,000	129	68	75	1,125
Sand, Industrial, tons	1	400,000	169	70	88	2,000
Sand and Gravel, tons	2	440,000	39	11	9	440
Geothermal Power, MWH	1	160,000	104	76	30	800
2000 TOTAL	13		8,647	2,430	732	35,765
2020						
Beryllium, tons	1	100	49	26	30	1,520
Gold and Silver, tons ore	1	500,000	404	177	250	5,000
Tungsten, tons	1	150	48	26	30	1,050
Uranium, tons U ₃ O ₈	1	100	162	71	100	1,200
Vanadium, tons	1	2,500	910	330	125	18,000
Barite, tons	4	400,000	344	182	200	3,000
Sand, Industrial, tons	1	400,000	169	70	88	2,000
Sand and Gravel, tons	2	462,000	40	12	9	462
Stone, tons	2	520,000	117	59	100	1,500
Geothermal Power, MWH	2	320,000	208	152	60	1,600
2020 TOTAL	16		2,451	1,105	992	35,392

*Statistics for individual mines reported to avoid disclosing confidential data.

TABLE 3-33

NUMBER OF MINES, MILLS, AND SMELTERS IN OPERATION AND NUMBER OF EMPLOYEES
BY COUNTY IN NEVADA: SELECTED YEARS: 1967-1979

County	June 30, 1967		August Operations	1975 ¹ Employees	December 1, 1979 ^a	
	Operations	Employees			Operations	Employees
Carson	0	0	10	39	7	19
Churchill	3	45	21	58	23	68
Clark	21	1,456	53	423	50	330
Douglas	6	82	11	51	6	30
Elko	7	14	26	238	37	280
Esmeralda	22	116	20	120	25	106
Eureka	10	196	11	287	21	294
Humboldt	11	231	18	162	24	105
Lander	7	266	44	724	43	819
Lincoln	11	100	11	212	13	302
Lyon	5	571	16	751	21	229
Mineral	12	96	31	112	43	151
Nye	20	966	30	568	49	792
Pershing	18	99	26	215	52	305
Storey	7	65	4	86	12	330
Washoe	3	92	17	206	19	119
White Pine	11	1,394	19	1,137	16	149
TOTAL	174	5,789	368	5,389	461	4,428

Source: Nevada Industrial Commission, Mine Inspector, Biennial Reports.

¹ Does not include smelters.

Employment in the barite operation (mill and mines) varies dramatically, from 25 to 30 employees during bad weather seasons to a total of 75 to 100 in full operation. Approximately 30 percent of the mine and mill workers live in the remote areas near the mines; about 50 percent live in Wells, Nevada; and about 20 percent live in Twin Falls, Idaho, or are drifters. The only significant impact is on the city of Wells, with about 25 to 30 workers and their families living there.

The two tungsten mines and mills in the area employ few workers (two to six per mine) and do not have a significant impact on local communities. However, there is some recent interest and activity in the area, which may generate future employment.

Copper mines in the area are currently depressed because of the low copper prices. The Day Mine at Victoria (currently shut down) has been the only significant mine (60 employees in 1979) in the area. It is located 50 miles from Wendover, 90 miles from Ely, and 89 miles from Wells. When operations started, technology allowed the building of a complete community of mobile homes and modular units. The company built and maintains roads, generates electricity, provides mail service from Wendover, and provides the water and sewer systems. Day Mines acquired the mine from Anaconda and started shipping copper concentrates in May of 1980. They have about 90 persons working when in full production.

Most of the employees live in the towns of Ely, Currie, and Wendover. They stay in camp during the work week. There are no stores at the mine site in Victoria. The mill has been shut down since February 28, 1981, because of the low copper prices. They are now operating only a limited underground operation, with about 11 employees.

Impacts on existing communities from new mineral development will be mostly influenced by the location of the mineral development in relationship to the existing community. If a mineral development is relatively close to an existing community, it is likely that the associated population will settle there. If the development occurs in a remote area, another "Victoria" is likely.

Oil and Gas

Oil and gas exploration has been increasing in the Wells RA. Although no economic discoveries have been reported in the area, the economic impacts of acreage rental fees, wildcat drilling, and seismic exploration activities can be considered significant. Oil and gas acreage rental fees accounted for \$2,422,385 in Elko County in 1980 (\$1 per acre).

In 1980, there were three wildcat oil drilling operations operating within the Wells RA. It is estimated that each crew, consisting of about 15 employees

each, may spend \$2,000 a week within the local area. A new drilling operation, recently started in 1981, reported they will be spending \$12,000 a day over a 9-month period, or a total of over \$20,000,000. Most of this money will go to the private contractor, but repairs (which are frequent), fuel costs, lodging costs, etc. will be spent locally.

There were also four seismic exploration companies, consisting of about 25 to 30 employees each, operating most of the year in the Wells RA. It is estimated that they spend tens of thousands of dollars on lodging, food, etc., within the area.

Economic Analysis - Regional and National

Barite

Barite has become Nevada's second most valuable mineral commodity. Nevada continues to be by far the largest producer (85 percent) of the barite in the U.S.

Barite is the main constituent in oil drilling muds. The drilling mud market takes 90 percent of the total barite supply. Other markets are paints, glass, rubber, and barium chemicals.

Over 1,734,000 tons worth \$34,320,000 were produced in Nevada during 1979. Tonnage was about the same as in 1978, but the value was more than \$4,000,000 higher. Demand is expected to remain strong. Nevada's reserves of barite are huge and can meet demand for many years.

Chromalloy American reported the discovery of 5 million tons of barite in the Snake Range in the Wells RA and began mining three deposits during 1979. The capacity of its Dry Creek plant north of Wells was doubled to process this ore and a grinding plant is planned at Wells. Mines in the Wells RA have a 10-year identified reserve. The price for barite has remained stable over the last few years and the barite mines in the resource area are expected to produce higher quantities in the future, according to the forecasts by the Nevada Bureau of Mines and Geology.

CHROMALLOY MINES IN THE WELLS RA

<u>Year</u>	<u>Mined (raw ore)</u>	<u>Production</u>	<u>Value</u>
1977	150,000 tons	-----	---
1978	300,000 tons	100,000 tons	\$28 per ton
1979	300,000 tons	170,000 tons	---
1980	400,000 tons	200,000 tons	---
1981	300,000 tons	170,000 tons	\$40 per ton

Copper

Copper was by far the most important commodity mined in Nevada for many years. Production has dropped markedly in recent years. In 1979, only 123 tons worth less than 1 million dollars were produced, compared with 84,000 tons worth \$130 million in 1975. Copper producers have been plagued by an over-supply and low prices in the face of rapidly increasing costs. Copper mining could increase in Nevada in future years, but no new mines are being opened and exploration has been cut sharply. This indicates that no big surge in production can be expected in the short term, especially in the face of increasing costs and continuing low prices.

The Commodities Research Unit Ltd., New York, predicts a significant price raise for copper as stores are eaten up by rising world demand. From 1982 through the end of 1987, they expect very strong prices, with a push in 1984. From this prediction, it appears that the prospect for the future operations of the copper mines in the resource area are very good.

Barite and copper are the two major minerals produced in the resource area. Recent copper production is insignificant in terms of national production, but the barite production for 1979 is approximately 85 percent of the national production.

Energy Production

Nevada has no coal or uranium mines in operation and only two small oil fields, so the state has not been an important factor in the energy crisis.

Social Values and Public Attitudes-Local

Local residents recognize that the mining industry is very important to their local economies. This was expressed in the social analysis interviews. A majority of interviewees (68 percent, consisting of ranchers, miners, businessmen, and local government officials) did not feel that the mining in the area was overly destructive to the land. In fact, one local businessman in Jackpot said that his area was a tourist attraction mainly because of the mining activity, with all the remains and tailings.

The 1872 mining law was criticized by some social analysis interviewees. One influential city official said that the miners think this law absolves them from any responsibility. He said that some barite mines rip, tear, and rape the landscape. Another interviewee (a rancher) said that the 1872 mining law was made for the pick and shovel prospector; in these times, it allows too much freedom for the big mine operator.

There were other complaints against the mining industry. One person thought that the \$100 assessment work rule should be changed because miners dig up their claims just to satisfy this yearly assessment requirement. Another person stated that if a longer look would be taken at past, present, and future digging operations (especially the smaller operations), it would

probably show that mining is causing a lot more damage than people think. A third interviewee thought that most of the destruction has been caused by roads that are necessary to get into the mining operation. A rancher suggested that a "mining board" (similar to the grazing advisory board) be set up and meet periodically, with the public invited to view the plans for mining activity in the area.

A few people had complaints against the "small time" prospector. It was said that these prospectors are the ones that tear up the countryside and trespass on private property. The opinion of one rancher was that the big mining companies are much easier to control and to deal with.

Four mining executives, each from a different mining company, had very positive attitudes toward BLM and their relationship with the Bureau. They thought that the resource area was excellent for the mining industry because of all the public lands and the lack of restrictions. They generally had favorable attitudes toward the new mining regulations. One said that he liked the regulations "as long as they remain flexible and subject to interpretation by field personnel."

The mining executives thought very highly of their industry. One said that the mining industry is "putting their best foot forward and they are giving outstanding leadership in reclamation." Another mine official noted that the mining industry has the capability of being the most destructive industry on public lands, but, if mining companies plan ahead and budget money for reclamation, they can leave the land in better condition than before the mineral extraction.

Social Values and Public Attitudes-National

The resource area is not economically significant in mineral production at the national level. This could change if future exploration uncovered further mineral reserves, especially if these reserves were in the energy or strategic metal categories.

Secretary Watt, who heads a new Cabinet-level council on natural resources and the environment, has told the Senate Energy and Mineral Resources Subcommittee that the U.S. must increase the levels of the strategic stockpile. He has also urged more exploration for minerals on Federal lands.

MINERALS
SUSTAINED LEVELS OF USE/PRODUCTION/DEVELOPMENT

Locatable Minerals

Identified reserves and active exploration efforts, using increasingly sophisticated techniques, are most likely to maintain mineral production at current or increased levels in the Wells RA in the next 10 years. In the longer run, exhaustion of mineral resources is bound to occur, resulting in a "bust cycle".

Oil and Gas

No oil or gas is currently being produced in the Wells RA.

Geothermal

Geothermal resources, for planning purpose, last indefinitely. They would not be depleted over the next 10 years even if heavily developed (which they are not).

CHAPTER 4

OPPORTUNITY ANALYSIS

LANDS
OPPORTUNITY ANALYSIS

Urban/Suburban Expansion Needs

The opportunity exists to make available, through R & PP sale and/or lease and public sale, all lands requested by Wells RA communities. Some lands requested by West Wendover may be topographically unsuited to any form of development and some requests by the city of Wells include floodprone riparian zones.

If land were not made available to communities, West Wendover's and Jackpot's growth would be severely limited and Wells and Montello would be forced to expand by using private lands scattered around their vicinity. This would not be consistent with the city of Wells' development plans and would not promote logical community development. This could result in management problems, specifically trespass, occurring on public lands.

Checkerboard Resolution

The opportunity exists to resolve public and private management problems within the checkerboard land area. Numerous land exchange and sale proposals have been made in the past. However, no action has ever been taken on many of these.

One reason has been a lack of clear direction in management goals. In addition, some areas within the checkerboard, regardless of resource values, offer no reasonable opportunity for consolidation because there are literally hundreds of land owners involved. These lands exist around Montello and are the result of land subdivision speculation.

Thousands of private acres within the checkerboard have high multiple-use values and thus warrant acquisition to improve management of resources. On the other hand, thousands of public acres within the checkerboard lack multiple-use values; these warrant either disposal by land exchange to acquire high multiple-use value lands or sale to eliminate management problems. Lands overlays show the opportunities for checkerboard resolution.

State of Nevada Needs

The state of Nevada, as previously discussed, wants to acquire fee title to highway rights-of-way, maintenance stations, and material sites. The only opportunity that exists is to convey maintenance stations.

If all these lands are not made available in fee title, no adverse impact should be experienced by the state except for the lands occupied by the maintenance stations. The state could lose its investments in improvements if it could not sell maintenance facilities, should a relocation need arise. It should be noted that no relocation proposal has ever been made, nor does the state of Nevada have funds to purchase any of the desired lands.

Agricultural Land Needs

At present, the opportunity exists, based on knowledge of available water, to permit approximately 15 DLEs within three hydrographic basins. More may be possible as water availability information is received from the Nevada Division of Water Resources.

Corridor Needs

As previously discussed, the primary demand for utility corridor designation reflects the need for power transmission from the proposed Thousand Springs Power Plant. The opportunity exists to designate corridors for that purpose, as well as corridors following existing major rights-of-way and corridors to accommodate major distribution needs.

If corridors were not designated, more time would be required for companies to secure rights-of-way, more resource conflicts would result, and right-of-way proliferation would result as each company created meandering service paths through the resource area.

ACCESS
OPPORTUNITY ANALYSIS

The opportunities to acquire legal public access include all areas where BLM roads cross private lands. However, this would involve a list of well over 200 opportunities in the Wells RA. A more realistic approach to an opportunity analysis is to prioritize the opportunities and thus reduce the number. This is particularly sensible in light of the fact that only about five easements can be obtained during a one-year period (given present funding limitations).

Several BLM resource disciplines have informally identified specific BLM roads as having high priority for legal administration and/or public access needs. Many roads were identified, but the following is a list only of those that cross private lands and therefore have the potential for creating a legal public access problem. The roads are not listed in order of priority.

The acquisition opportunities overlay identifies the roads and site specific opportunities for legal public access acquisition.

Wilderness

Bad Lands WSA

1. BLM road # 1223
2. The extension of the County Road at Twin Meadows

South Pequop WSA

1. BLM road # 1037
2. BLM road # 1269
3. BLM road # 1270

Bluebell WSA

1. BLM road # 1024

Goshute Peak WSA

1. BLM road # 1024
2. BLM road # 1018

Range Management

Contact

1. BLM road # 1136
2. BLM road # 1107
3. BLM road # 1108
4. BLM roads # 1097-1099
5. BLM road # 1109

Currie

None

The above roads have been identified as definite priorities for management of the range program. However, all other roads in the BLM transportation plan and many smaller roads not designated in the plan are necessary to some extent for the operations and maintenance of this program.

Recreation

Contact

1. BLM road # 1275 to Tabor Creek
2. BLM road # 1274 to Salmon Falls Creek
3. BLM road # 1136 to Crittenden Reservoir
4. BLM road # 1064 or 1096 to Mary's River
5. Roads to Bishop Creek Reservoir-east and west
6. BLM roads # 1097-1099
7. BLM road # 1285
8. BLM road # 1107
9. BLM road # 1108
10. BLM road # 1137
11. BLM road # 1109
12. BLM road # 1223

Currie

None

Wildlife (Terrestrial)

Contact

1. BLM road # 1223
2. BLM road # 1136
3. BLM road # 1101

Currie

None

The above roads have been identified as definite priorities for management of the terrestrial wildlife program. However, all roads in the BLM transportation plan are used to some extent for the operations of the terrestrial wildlife program.

Wildlife (Aquatic)

Contact

1. BLM road # 1107
2. BLM road # 1109
3. BLM road # 1274
4. BLM road # 1108
5. BLM road # 1285

6. BLM road # 1203
7. BLM road # 1275
8. BLM road # 1096
9. BLM road # 1064

Currie

None

Woodland Products

Contact

1. BLM road # 1076
2. BLM road # 1071

Currie

1. BLM road # 1054
2. BLM road # 1060
3. BLM road # 1062
4. BLM road # 1049

The following agencies have informally identified specific BLM roads in terms of legal administration and/or public access needs. Many roads were identified, but the following is a list only of those that cross private lands and therefore have the potential for creating a legal public access problem. The roads are not listed in order of priority.

The acquisition opportunities overlay identifies the roads and site specific opportunities for legal public access acquisition.

U.S. Forest Service

Contact

1. BLM road # 1108
2. BLM road # 1285
3. BLM road # 1096
4. BLM road # 1107

Currie

None

Nevada Department of Wildlife

Contact

1. BLM road # 1137 (used by the public)
2. BLM road # 1223 (used by the public)
3. BLM road # 1108 (used by the public)
4. BLM road # 1107 (used by the public)
5. BLM roads # 1099 & 1097 (used by NDOW)

6. BLM road # 1123 (used by the public)
by the public)

6. BLM road # 1123 (used by the public)
7. BLM road # 1097 (used by the public)
8. BLM road # 1081 (used by the public)
9. BLM road # 1082 (used by the public)
10. BLM road # 1272 (used mainly by hunters)
11. BLM road # 1285 (used by ranchers, hunters, and campers)
12. BLM road # 1096 (used mainly by campers)
13. BLM road # 1275 (used by the public)
14. BLM roads # 1080 and 1069 (used mainly by hunters)

Currie

1. BLM road # 1037 (used by hunters and NDOW employees)
2. BLM road # 1034 (sage grouse strutting ground transects are located along this road)
3. BLM road # 1061 (used mainly by woodcutters and hunters)
4. BLM road # 1286 (used by the public)

Soil Conservation Service

Contact

1. BLM road # 1203
2. BLM road # 1096

Currie

None

U.S. Geological Survey

Contact

None

Currie

1. BLM road # 1037

RECREATION OPPORTUNITY ANALYSIS

The Recreation Opportunity Spectrum (ROS) provides a conceptual framework for inventory, planning, and management of the recreation resource. The ROS recognizes that people differ in their needs and desires. In addition, the resource base is not uniform; it varies in its potential for providing recreation resources. The ROS serves as a management tool to characterize either the capability of a resource to provide an experience or the demand for an experience in terms of the activity and setting opportunities provided or demanded.

Some of the recreation attractions in the Wells RA draw people from outside the country and state. This trend is expected to increase in the future as the recreational quality of more populated areas decreases. For example, of the 25,000 visitor days of use at the Ruby Marsh Campground in 1981, about 35 percent are estimated to have been from outside of Elko County (primarily from White Pine County) and another 35 percent from out of state.

It is anticipated that visitation at Ruby Marsh Campground will increase by 20 percent by 1985. The primary recreation activity at Ruby Marsh Campground is fishing for large mouth bass and rainbow, brook, and German brown trout. Secondary activities include wildlife observation, sightseeing, and just simply relaxing.

Ruby Marsh Campground is of prime recreational importance and should be managed as a special recreation management area (SRMA). The campground is experiencing some resource and facility damage, sanitation problems, and conflicts between recreationists. Objectives and specific actions needed to manage the campground are as follows:

Objectives: This area should be intensively managed to provide roaded-natural opportunities. Management activity opportunities should emphasize camping and picnicking.

ROS Class: As shown on the overlay (opportunity analysis), meeting the objectives specified above will involve managing the 160 acres in and around the campground under a roaded-natural classification. Maintaining this class would require:

1. Ensuring facilities remain visually subordinate (rustic) to the existing landscape (VRM class III).
2. Distributing visitor use to ensure that encounters between user groups are moderate and facilities can be adequately maintained.
3. Using both onsite (public contact & signing) and offsite (education) managerial techniques.

4. Providing camping and picnicking opportunities. This would require the upgrading of both the recreation facilities and the current method of trash disposal (see table 4-1).

5. Withdrawing the campground site from mineral entry.

Meeting these resource condition goals would require the following specific actions:

1. Development of new roads, trails, and utility corridors would not be allowed in the campground.

2. Existing roads in the campground would be regraded.

3. The campground would be managed for approximately a 60 to 70 percent occupancy rate in order to effectively maintain facilities.

4. Existing recreational facilities would be improved (paint tables, replace fire-rings and barrier posts, etc.).

5. BLM would fence and gate the 160 acres in and around the campground.

6. Either a trash compacter would be obtained, or a contract would be negotiated for trash removal and maintenance of sanitation facilities in the campground and at South Ruby Marsh.

7. Onsite management would be improved through more effective "signing" of the campground.

A second area warranting designation as an SRMA is the 16-mile stretch of Salmon Falls Creek from just west of Highway 93 (T. 47 N., R. 64 E., Sec. 23, NW1/4) to Salmon Falls Creek Reservoir in Idaho. This area (the 8 river miles in Nevada) is the only navigable reach of river in the Wells RA and provides one of the better recreational floatboating experiences (class I) in northeastern Nevada.

Salmon Falls Creek is an area of gently rolling volcanic ridges and mesas cut by the Cottonwood and Salmon Falls creeks into deep, steep-walled, rock-rimmed canyons of very high scenic quality. Dense riparian vegetation covers much of the canyon bottoms. For the most part, the canyon bottoms are accessible only by foot, horseback, or boat. Roads and other intrusions are few, the most prominent intrusions within the canyon being the fish barrier, the associated access road, and the electrical distribution line which crosses the creek in the vicinity of the fish barrier.

The Burley BLM District (Idaho) has recommended designation of Salmon Falls Creek on the Idaho side as a special recreation management area (SRMA) in an

TABLE 4-1
PROPOSED RECREATION FACILITY DEVELOPMENT

AREA	SANITA- TION FACILITY	ROAD IMPROVE- MENT	PICNIC TABLE	PARKING AREA	TRASH FACILITY	SIGN	FENCE	FIRE- RING
Ruby Marsh Campground		X			X	X	X	X
Cottonwood/Salmon Falls	X		X	X		X		
*Crittenden Reservoir	X			X		X		
Tabor Creek		X	X					X

*Assuming a land exchange will occur.

MFP Step II decision. An Elko District recommendation to manage the area for semiprimitive, nonmotorized opportunities would complement the Burley District recommendation and establish a homogeneous management unit.

The Nevada State Director has stated that the gorge portion of the Intensive Wilderness Inventory Unit NV-010-179 (the portion of Salmon Falls Creek from the powerline to the Nevada/Idaho state line) "merits some type of protective management."

Salmon Falls Creek is in an area projected to experience moderate to dramatic population increases. Between 1980 and 1985, Twin Falls County in Idaho is expected to experience a population increase of 4 percent and Jerome County, Idaho, an increase of about 3 percent. During the same period, the population of Elko County is expected to increase about 32 percent. Traditionally, a significant portion of these populations spend time recreating in rural northeastern Nevada. Indications are that this recreation use will increase along with the populations.

The community of Jackpot, Nevada, situated on the Nevada-Idaho state line along U.S. Highway 93, is the natural focal point for recreational activities. Five-year projections for Jackpot indicate an 85 percent increase in population. Increased demand for outdoor recreation experiences would be partially met by implementing semiprimitive, nonmotorized opportunities along Salmon Falls Creek.

Objectives and specific actions needed to manage Salmon Falls Creek as an SRMA are as follows:

Objectives: This area should be managed to provide semiprimitive, nonmotorized opportunities. Management activity opportunities should emphasize floatboating and the camping, fishing, swimming, and sightseeing activities that occur in conjunction with the floatboating use. An exception to the prevailing nonmotorized use classification would be made along two existing roads. Both roads terminate at the river (one in Idaho and the other at the fish barrier dam in Nevada) and serve as ingress points which should be managed to provide semiprimitive, motorized opportunities.

ROS Class: As shown on the overlay, meeting the objectives specified above would involve managing virtually all of the area (1,750 acres) under a semiprimitive, nonmotorized classification.

Maintaining this class would require:

1. Maintaining the natural resources of Salmon Falls Creek Canyon in an essentially unmodified condition. The steep terrain of the canyon restricts motorized use (with the exception of the two roads leading to the creek).

Therefore, a formal ORV designation of closed would be unnecessary. Major facilities such as pipelines or powerlines should be restricted. Levels of recreation use should be limited to those which would not produce unacceptable changes in the natural character of the landscape.

2. Limiting and distributing visitor use (if visitation rapidly increased) to ensure that encounters between user groups averaged no more than six groups per day in semiprimitive, nonmotorized areas and a low frequency of contact in semiprimitive, motorized areas.

3. Using off-site visitor management techniques (such as permits and education) as much as possible and limiting facilities to those required for resource protection and visitor safety (see table 4-1).

4. Maintaining resource base attributes (stream flow volume) to provide floatboating and the associated camping, fishing, swimming, and sightseeing activity opportunities. An average flow of about 250 cfs would provide a challenging and enjoyable floatboating experience.

5. Ensuring facilities or development would not be evident in the landscape (VRM class II.)

Meeting these resource condition goals would require the following specific management actions:

1. Development of new roads, trails, or utility corridors in the area would be restricted.

2. A minimum flow of about 250 cfs would be maintained. This would provide for an enjoyable and challenging floatboating experience from about March to June or mid-July.

3. Rustic facilities would be developed (if needed) at the most suitable points along the two ingress routes. These facilities would be limited to those necessary to protect the area and provide for the needs of parties beginning river trips in Salmon Falls Creek Canyon and camping midway between the rest area upstream and Salmon Falls Creek Reservoir downstream.

4. A registration system (sign-in boxes) would be established for floatboating use in Salmon Falls Creek Canyon. This system would provide use data and encourage visitors to use minimum impact camping techniques.

5. Road counters would be installed to obtain additional visitor use information.

6. BLM would negotiate with the Highway Department to ensure that the rest area near the highway remained accessible to floatboaters as an ingress point. A fence constructed in the spring of 1981 crosses the creek just downstream

from the rest area. This greatly hampers access to the canyon area downstream.

Crittenden Reservoir (see recreation opportunity analysis overlay) is currently managed by the Nevada Department of Wildlife (NDOW) as a quality trout fishery. The reservoir provides opportunities for roaded-natural fishing. A land exchange with Sierra Pacific for land surrounding the reservoir should be considered, particularly if the water rights to the reservoir were included. This would enable the Bureau to protect the springs and maintain a minimum pool for fisheries in the reservoir. Such management would maintain, and perhaps increase, the quality of the fishery. Proposed site development for this area is listed in table 4-1. If a land exchange did not occur, an easement should be obtained to ensure future access to the reservoir.

Other areas with recreational potential include Tabor Creek, the Bad Lands, and Bishop Creek Reservoir. Primary management concerns in these areas center around extensive management, providing or securing access, and informing the general public of opportunities available at these sites.

The proximity of, and good access to, Tabor Creek from Wells, Nevada, coupled with its growing popularity as a day-use site, indicate that this area presents management opportunities. Some facility development, such as the installation of picnic tables, would be required to meet demand (see table 4-1). An easement is needed at Tabor Creek (T. 41 N., R. 61 E., Sec. 31) to secure future access for recreationists.

The portion of Salmon Falls Creek which flows through the Bad Lands provides opportunities for semiprimitive nonmotorized fishing and viewing of outstanding scenery. This canyon is of high scenic quality and provides the best opportunity in the Wells RA for stream fishing. Game fish in this portion of Salmon Falls Creek include rainbow and German brown trout up to four pounds. An easement should be obtained through the Burnt Meadows area to ensure future access to recreationists.

Current visitation at Bishop Creek Reservoir is minimal, primarily due to poor road conditions and restricted access to the reservoir. Because of its proximity to Wells, this reservoir could meet much of the day-use, water-based recreation demand which Wells will experience in the next 5 to 10 years. The reservoir currently covers about 800 surface acres and could provide management opportunities for roaded-natural boating, picnicking, and fishing.

At this time, Bishop Creek Reservoir is considered a low priority area. However, as the population of Wells increases, so will the priority of Bishop Creek Reservoir. A real need for intensively managing this area as a recreation site could occur within the next 5 to 10 years if the population in and around Wells increased by 5,000 or 6,000 people.

The section of Mary's River from its source within the Jarbidge Wilderness Area to the west boundary of section 13 of T. 42 N., R. 59 E., may meet the criteria needed for inclusion in the National Wild and Scenic Rivers System. The BLM and USFS must determine if this section of river meets the minimum criteria for a wild and scenic rivers study. The opportunity may exist to manage this section of stream as a wild, scenic, or recreational river (see overlay).

Recreation opportunities are listed in order of priority in table 4-2.

TABLE 4-2

RECREATION OPPORTUNITIES IN ORDER OF PRIORITY

- Designation of Ruby Marsh Campground as a special recreation management area (SRMA); replace/repair facilities
- Designation of Salmon Falls Creek as an SRMA; minimal facility development
- Land exchange - Crittenden Reservoir; improve watershed, develop facilities as needed
- Easement and day-use facilities at Tabor Creek
- Management of Mary's River; possible designation as a wild and scenic river
- Easement to Bishop Creek Reservoir

WILDLIFE HABITAT

OPPORTUNITY ANALYSIS

Special Wildlife Use Areas

Mule Deer Winter Range

Mule deer winter ranges in the Wells RA are rated in poor condition. The most common causes of habitat reduction/destruction on deer winter ranges are (1) livestock competition, particularly with cattle, (2) brush eradication projects, (3) pinyon-juniper encroachment, and (4) mining activities. The management objective should be to improve deer winter ranges to a good or better condition to benefit wildlife and livestock alike.

Possible solutions to achieve this objective are to (1) establish livestock grazing systems, (2) provide more winter browse vegetation, and (3) reduce habitat reduction/destruction. Currently, critical deer winter ranges represent 6.7 percent (Contact Unit 1.3 percent and Currie Unit 5.4 percent) of the total public land in the resource area.

Grazing systems should control cattle distribution and grazing pressure. This would help reduce the competition for vegetation, including browse species such as bitterbrush, between cattle and deer by controlling livestock's access to the browse. Reducing grazing pressure on the forage should improve the quality, and possibly the quantity, of browse species. Currently, less than 25 percent of the resource area is controlled by a grazing system.

The quantity of winter browse vegetation could be increased by planting browse seeds or seedlings. Currently, bitterbrush seed is approximately \$8.00 per pound and seedlings are \$1.00 each. Variables which must be considered in planting projects are (1) the specific site, (2) seed mixture and mixture composition, (3) the animal population, wild and domestic, which will be affected, and (4) the advantages/disadvantages and total cost of the project. These variables are not inclusive but are the ones that should receive primary consideration.

Brush eradication projects that convert winter range to grass have occurred on deer winter ranges in the resource area. Unfortunately, a large portion of the projects occur on private land, which limits the habitat management options. A cooperative effort between the Bureau and private landowners to monitor and manage current and future projects is an option.

Pinyon-juniper encroachment into deer winter ranges reduces the quantity of the preferred, more nutritious browse forage. Deer will utilize evergreen species such as pinyon-juniper, but these species contain lower protein ratings than shrub species such as bitterbrush. Animals on an inadequate protein diet are less able to digest low quality forage. Pinyon-juniper

removal, either manually or mechanically, would allow increased availability of better forage for deer. Mechanical removal by chaining can be accomplished for approximately \$12 an acre (March 1981 estimate).

Mining activities cause considerable surface disturbance and habitat destruction. The new roads commonly associated with mining operations account for a significant part of this resource damage. A management opportunity exists to restrict new road construction to the minimum necessary to allow an operation to be viable and to critically review additional new roads beyond this minimum.

Deer winter ranges should be prioritized to receive the most efficient management considerations and recommendations. Current data are insufficient to achieve this degree of refinement. Therefore, critical winter and yearlong ranges should be designated as high priority management areas and noncritical winter and yearlong (includes winter) ranges designated moderate priority. This approach would establish and provide a system to eventually achieve the main management objective of improving all deer winter ranges to a good or better condition.

Pronghorn Antelope Yearlong Range

Pronghorn antelope yearlong ranges in the Wells RA are rated in poor condition. Livestock competition and habitat reduction/destruction are the primary reasons. These ranges have been discussed in the Wildlife Habitat, Existing Situation section. The management objective should be to improve antelope yearlong ranges to a good or better condition to benefit wildlife and livestock alike. Possible solutions to achieve this objective are to (1) establish livestock grazing systems and (2) reduce habitat reduction/destruction.

Currently, the only identified critical antelope yearlong range is within the Currie Unit; winter and summer use areas are not delineated. This range represents 11.7 percent of the total public land in the resource area.

The discussion of grazing systems to benefit deer habitat is also applicable to antelope habitat. Since winter and summer use areas are not delineated in the Currie Unit, a grazing system would be a general approach to reducing pressure on the total resource. Consequently, the habitat would have a chance to rehabilitate itself and provide forbs for spring and summer use, shrubs for fall and winter use, and grasses for light yearlong use for antelope and livestock alike. Food habitat studies indicate antelope seek and utilize a mixed diet of shrubs, forbs, and grasses for all seasons of the year.

Halogeton, a noxious poisonous plant, appears to be increasing in several of the antelope yearlong ranges, especially in the Currie Unit. This invader species is an indicator of range deterioration.

Trend studies are needed to determine the direction of plant succession, including the status of halogeton, in antelope yearlong ranges. Grazing systems and trend studies would provide an opportunity to monitor and manage all antelope yearlong ranges, especially critical ranges.

Habitat reduction/destruction of critical antelope yearlong range is well documented. Wild and free roaming horses and domestic sheep are the primary causes. Trampling and overgrazing are the primary results. A secondary result is the invasion of undesirable vegetation such as halogeton.

Management opportunities to solve these habitat reduction/destruction problems could include (1) grazing systems, (2) reducing the horse population, and (3) vegetation management. Grazing systems have already been addressed.

The current estimated horse population in the Currie Unit is 600, a conservative estimate. Data are insufficient to adequately assess the total horse situation and determine a reasonable number figure. The last horse gathering effort in this area in 1980 removed over 700 animals; 200 were probably from the Ely District. A fecal analysis study indicated dietary overlap in this area was greater between horses, cattle, and sheep than horses, deer, and antelope. Additional study is required for proper assessment.

Vegetation management and the effects upon the total habitat and animal populations must be carefully considered. Yearlong antelope range is no exception. Target areas for such management in critical yearlong range are not established. Trend studies would contribute significant information toward the formation of target areas.

Yoakum (1980) established vegetation requirements for pronghorn antelope in a sagebrush association for ground cover, composition, variety, succulence, rangeland types, height, and forage requirements. Miller (1981) conducted a study of antelope habitat vegetation condition in the resource area, including critical yearlong range. The results of this study showed that (1) the antelope ranges are in a state of retrogression (i.e. changes in cover composition and invasion of new species), (2) the vegetative height is the only vegetative habitat requirement met, and (3) the overall condition rating of the study areas, including critical yearlong range, is poor. Miller also states the report contains insufficient data to justify the implementation of a major management plan and that trend studies are badly needed to fill the data gaps.

Management opportunities for vegetative management, based on current information, are to (1) develop water sources to disperse antelope throughout their yearlong range and consequently achieve a more equal utilization of the forage resources, (2) avoid major alternations to the range vegetation, and (3) study areas that presently receive minimal antelope use.

Water is a limiting factor on critical antelope yearlong ranges in the Currie Unit. Vegetative management target areas over 4 miles from a dependable water source should not be considered without an accompanying water development project.

Antelope depend upon a sagebrush community for the necessities of life. Reduction of sagebrush in yearlong ranges, particularly in critical areas, can create deficiencies. The importance of kidding areas has already been discussed (Wildlife Habitat, Existing Situation section), and sagebrush contributes significantly in these areas, especially in providing concealment for antelope kids. Major vegetative alternations, such as conversions of sagebrush to monocultural seedings (i.e., crested wheatgrass), can only represent a negative impact to antelope habitat, especially critical ranges and special use areas. A management opportunity exists to protect yearlong ranges by avoiding major vegetative alterations without prior intensive investigation and consideration of the impacts.

Yoakum (1981) states that preferred antelope rangelands have vegetation with a mean height of 15 inches. Areas with vegetation over 24 inches are infrequently used. Even though the vegetative height requirements were met during Miller's (1981) study, areas exist within the defined antelope habitat that have vegetation with height in excess of 30 inches. A management opportunity exists to intensively identify and investigate areas with vegetation exceeding 30 inches height. This would provide information on the feasibility of developing these areas to disperse antelope and achieve a more even utilization of the resources. Water development projects would enhance this opportunity.

The data are insufficient for total analysis and specific management opportunity recommendations for antelope yearlong ranges. In general, it can be stated that critical yearlong range and associated special use areas such as kidding areas and critical winter range should be designated as high priority management areas. Noncritical yearlong ranges and delineated winter ranges should be designated as moderate priority areas, while summer ranges should be designated as low priority areas. This approach will help to achieve the main management objective to improve all antelope yearlong ranges to a good or better condition.

Elk Yearlong Range

NDOW states that elk yearlong habitat is in poor condition at lower elevations but in good condition at higher elevations. Livestock competition is cited as the primary reason for poor conditions.

The management opportunities to protect this unique and valuable habitat might be to (1) establish a livestock grazing system and (2) establish trend studies to properly assess the total habitat. The importance of both opportunities has been discussed elsewhere.

All elk yearlong habitat must be considered high priority to allow proper habitat assessment and management recommendations.

Sage Grouse Habitat

The importance of sage grouse habitat and the dependence of sage grouse upon sagebrush for existence has already been discussed (Wildlife Habitat, Existing Situation section).

Wintering Habitat. Sage grouse are critically dependent upon sagebrush during the winter and their current winter habitat is rated in poor condition. However, data on winter habitat locations and condition are insufficient for adequate analysis and management recommendations. A management goal should be to improve wintering habitat to a good or better condition. Management opportunities to achieve this goal might be to (1) avoid sagebrush removal and alteration projects close to known wintering habitat, (2) continue wintering habitat studies, and (3) establish livestock grazing systems.

The spatial requirements between wintering habitat and strutting habitat are not fully known. Current data indicate that wintering habitat is within 5 miles of strutting habitat. Therefore, sagebrush removal and alteration projects within 5 miles of known wintering habitat should be avoided. Additional studies and field investigations would contribute significant information on wintering habitat and its relationship to other grouse activities.

The importance of grazing systems in protecting all wildlife habitat to benefit both wildlife and livestock has been discussed (see mule deer winter range). The objective is to avoid moderate to heavy livestock utilization on sagebrush during the winter. All wintering grounds should be classified high priority.

Strutting Ground Habitat. A recent study in the resource area (Kesting, Susmilch 1980) states that the primary vegetative requirement for active sage grouse strutting grounds is the presence of low sagebrush with an average height of 9 inches and an average density of 25 percent. The vegetation surrounding a strutting ground is usually taller and more dense and primarily used for escape cover. Data is lacking on the general condition of strutting grounds.

Management opportunities to protect strutting grounds might include (1) establishing trend studies, (2) establishing a livestock grazing system, and (3) prioritizing strutting grounds.

Trend studies would supply additional information on the vegetation within, and adjacent to, active and nonactive grounds alike. A nonactive ground one year might be an active ground the next. Currently, 72 percent of the active grounds occur in the Contact Unit and 28 percent in the Currie Unit.

The importance of grazing systems has been discussed. Sage grouse are not tolerant to disturbance during the strutting season. Livestock control during this season by a grazing system would contribute to the reduction of general disturbance of, and pressure on, forage and grouse habitat alike.

All strutting grounds should be assigned a high priority rating. The priority rating and trend studies should provide necessary information to determine if minimum vegetative requirements were present on strutting grounds.

Nesting Habitat. Wallestad and Pyrah (1974) state nest sites are usually within 2 miles of a strutting ground. The resource area is no exception. Nests are made by scratching out a shallow depression, usually beneath or between sagebrush plants; they are thus susceptible to livestock trampling.

Management opportunities to protect this important habitat might include (1) complete protection of nesting habitat and (2) establishing a livestock grazing system. Grazing systems have already been discussed.

All land within 2 miles of strutting grounds should be assigned a high priority for protection for nesting habitat, especially from mid-April to late June.

Brooding Habitat. The importance of brood habitat, especially meadows, has already been discussed. The management opportunities to protect this habitat might include: (1) protection of nesting habitat, which would include brood habitat; (2) establishment of a grazing system; and (3) fencing and development of water sources. The first two options have already been discussed.

The condition of meadows, springs, and other water sources has previously been discussed (Wildlife Habitat, Important Use Areas). The cost and size of fencing these sources will be discussed further in the Special Habitat Feature section. Water sources, especially meadows, within 2 miles of a strutting ground should be designated high priority for development and protection, sources from 2 to 4 miles moderate priority, and sources more than 4 miles low priority.

In general, all sage grouse habitat should be considered as high priority for management opportunities unless and until further information can prove differently.

Special Habitat Features

Springs, Seeps, and Small Meadows

The importance and status of these special habitat features have already been discussed in the Wildlife Habitat, Existing Situation, Special Use Areas

Section. Currently, 55 percent of the cold springs, 61 percent of the seeps, and 52 percent of the small meadows (less than 2 acres) in the resource area are in less than good condition.

Management opportunities to improve these features to a good or better condition would include (1) fencing and water development projects and (2) a livestock grazing system.

A joint effort between BLM and NDOW biologists identified 19 springs, seeps, and associated wet meadows exhibiting accelerated resource damage (table 4-3). Funding limitations allowed intensive inventory and potential development considerations for only 8 of these features. Fencing and water development could improve each of these areas to a good or better condition. This would improve habitat that is utilized primarily by sage grouse, mule deer, and livestock.

Each project would range from one-half to one acre in size and consist of fencing, a spring box, water pipe, and a water trough. The cost (March 1981 information), excluding labor, would range from \$300 (one-half acre) to \$500 (one acre) for each project.

TABLE 4-3
WATER DEVELOPMENT PROJECTS FOR WILDLIFE WATER

Wildlife Water No.	Special Habitat Feature Number	Feature	Legal			
			T(N)	R(E)	S	1/4 1/4
01	L157	Seep	43	70	05	NW/SE
02	L160	Spring	43	70	04	SE/NW
03	L240	Spring	44	70	08	NW/SW
04	M399	Spring	44	70	08	SW/SW
05	L263	Spring	44	69	25	NE/NE
06	L276	Spring	44	70	29	NW/NW
07	L279	Spring	44	70	29	NW/NW
08	M398	Spring	44	70	18	SE/SW
	L111	Spring	44	69	28	NW/SE
	L136	Seep	44	69	21	NW/NW
	L181	Spring	45	69	34	SW/SW
	L184	Spring	44	69	04	NE/SE
	L248	Spring	44	70	19	NW/SW
	L250	Spring	44	70	07	NE/NE
	L251	Spring	44	70	08	NW/NW
	L261	Spring	44	70	19	NW/SW
	M400	Spring	44	69	25	NE/NE
	H120	Spring	43	69	24	NW/SE
	H124	Spring	43	69	12	SW/NE

The areas containing these features are within the Dairy Valley, Bluff Creek, and Grouse Creek allotments; only Bluff Creek has a grazing system. Water sources are plentiful in this area. A more even distribution of livestock would allow these sources to begin to recover from trampling and accelerated resource damage.

Birds of Prey Nesting Habitat Features

Birds of prey, or raptors (hawks, eagles, owls, etc.) utilize three primary special habitat features for nesting habitat in the resource area: trees, cliffs, and rock outcrops. Of the 23 identified different species of raptors which are known to nest in Nevada, 14 have been positively identified to be nesting, or are strongly suspected to be nesting, within the resource area. Seven additional species have been identified in the area, but their nesting status on public land is unknown (table 4-4).

The nesting phenology (table 4-5) and territorial requirement (table 4-6) of raptors are generally established. Variations will occur from year to year, depending on climatic conditions and on latitude and elevation. As a general rule, birds in southern latitudes will begin nesting before the birds in the northern latitudes and birds in lower elevations before birds at high elevations.

Management opportunities to protect raptor habitat would be to avoid any disturbance near, or destruction of, nest sites during the nesting period and within the territorial requirement criteria for the species within the resource area. A species priority system, based upon sensitivity to disturbance, should be established. Current information does not allow this degree of refinement. Ferruginous and Swainson's hawks and goshawks are extremely sensitive to disturbance; their nesting habitat should be designated high priority. The nesting habitat of remaining species should be designated moderate priority.

As more data are available, this system can be upgraded. Filling in gaps including, but not limited to, prey habitat, alternate nesting habitat, and specific raptor habitat requirements in the area will contribute to the total ecological profile and habitat management for raptors in the area.

Areas of Critical Environmental Concern (ACECs)

The resource area contains six special wildlife habitat use areas that require special consideration for protection (table 4-7). Some of these areas are potential reintroduction areas for wildlife. The management opportunities to achieve this protection are to (1) identify these areas of ACECs or (2) develop a habitat management plan for them. The six areas are as follows:

TABLE 4-4
BIRDS OF PREY WHICH NEST IN NEVADA

Species Positively Identified Nesting or Strongly Suspected to be Nesting in the Resource Area	
Prairie Falcon	Pigeon Hawk (Merlin)
Sparrow Hawk (Am. Kestrel)	Great-horned Owl
Long-eared Owl	Short-eared Owl
Turkey Vulture	Cooper's Hawk
Sharp-shinned Hawk	Marsh Hawk
Ferruginous Hawk	Red-tailed Hawk
Swainson's Hawk	Golden Eagle
Species Identified in the Resource Area; Nesting Status Unknown.	
Osprey	Screech Owl
Barn Owl	Burrowing Owl
Saw-whet Owl	Flammulated Owl
Goshawk	
Species Not Identified to be Present in the Resource Area.	
Pygmy Owl	Peregrine Falcon

TABLE 4-5
NESTING PHENOLOGY OF BIRDS OF PREY

SPECIES	Nest Building	Egg Laying	Incubation	Hatching	Fledging
Turkey Vulture		4-1 to 4-10	4-1 to 5-22	5-14 to 5-22	8-1 to 8-8
Goshawk		4-10 to 5-5	4-19 to 6-12	5-27 to 6-12	8-11 to 8-27
Cooper's Hawk	4-15 to 5-7	4-20 to 5-11	4-26 to 6-22	6-1 to 6-22	7-4 to 8-26
Sharp-shinned Hawk		5-30 to 6-15	6-8 to 7-9	7-2 to 7-9	7-26 to 8-1
Marsh Hawk	4-2 to 4-7	4-14 to 4-19	4-22 to 4-27	5-18 to 5-23	6-17 to 6-26
Ferruginous Hawk	3-10 to 3-16	3-17 to 4-1	3-21 to 5-21	4-16 to 5-21	6-4 to 7-2
Red-tailed Hawk	2-6 to 3-25	3-5 to 4-21	3-23 to 5-2	4-6 to 5-23	5-16 to 7-1
Swainson's Hawk	4-13 to 5-9	5-13 to 6-15	5-17 to 6-28	6-16 to 6-28	7-16 to 7-26
Golden Eagle	2-2 to 2-26	3-6 to 3-30	3-10 to 5-14	4-2 to 5-14	6-7 to 6-21
Osprey	4-22 to 5-31	5-21 to 6-7	5-25 to 7-10	6-23 to 7-10	7-11 to 8-1
Prairie Falcon		4-20 to 5-1	4-28 to 6-6	5-26 to 6-6	7-2 to 7-15
Peregrine Falcon		3-21 to 4-16	3-23 to 5-16	4-22 to 5-16	6-1 to 6-26
Merlin (Pigeon Hawk)		5-20 to 6-15	5-25 to 6-20	6-10 to 7-10	7-20 to 7-30
American Kestrel (Sparrow Hawk)	4-10 to 5-1	4-27 to 6-1	5-1 to 6-3	5-27 to 6-30	6-25 to 7-28
Screech Owl	3-10 to 3-24	3-15 to 3-27	3-19 to 4-30	4-17 to 4-30	5-14 to 5-27
Great-horned Owl	1-1 to 2-30	1-20 to 4-10	1-25 to 5-12	2-27 to 5-12	3-31 to 6-17
Long-eared Owl					
Short-eared Owl	3-6 to 4-12	3-28 to 5-3	4-2 to 5-28	4-25 to 6-28	6-1 to 7-29
Barn Owl	1-6 to 4-10	2-6 to 5-18	2-14 to 6-17	3-4 to 6-17	4-28 to 7-23
Burrowing Owl	4-17 to 5-25	4-30 to 6-6	5-1 to 6-17	6-4 to 6-17	7-3 to 7-10

TABLE 4-6
TERRITORIAL REQUIREMENTS OF BIRDS OF PREY

Species	Average Territory or Range	
	Sq. Mi.	Diameter (mi.)
Goshawk	1.0-4.0	1.0-3.0
Cooper's Hawk	1.0-3.0	1.0-3.0
Sharp-shinned Hawk	1.0-3.0	1.0-3.0
Marsh Hawk	1.5-2.0	1.5-2.0
Ferruginous Hawk	1.0-3.0	1.0-2.5
Red-tailed Hawk	1.5-3.5	2.0-2.5
Swainson's Hawk	1.5-2.0	1.5-2.5
Golden Eagle	8.0-10.0	3.0-5.0
Bald Eagle	2.0-6.0	1.0-5.0
Osprey	3.0-8.0	.5-3.0
Prairie Falcon	2.0-5.0	1.5-5.0
Peregrine Falcon	3.0-10.0	3.0-8.0
Pigeon Hawk (Merlin)	1.0-2.0	1.0-2.0
Sparrow Hawk		
(Am. Kestrel)	.2- .6	.5- .8
Great Horned Owl	1.5-2.0	1.0-2.8
Long-eared Owl	.5-1.0	.5-1.0
Short-eared Owl	.5-1.0	.5-1.0
Barn Owl	.3-1.0	.3-1.0
Burrowing Owl	.16-.62	.20-.36

TABLE 4-7
AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACECs)

ACEC area	Size (acres)	Wildlife Species/Habitat	Comments
Goshute Mountains	125,465	Bald eagles	Endangered (E) species (state (ST) federal (FE) designation)
		Bighorn sheep (historic habitat)	Sensitive (S) species (ST only) Potential reintroduction site (PRS)
		Birds of Prey migratory route	Major fall migratory route
Pilot Peak	19,200	Elk	Only identified elk population in entire district.
		Bighorn sheep (historic habitat)	S, ST, PRS
Bad Lands	9,100	Bighorn sheep (historic habitat)	S, ST, PRS
North Fork	25,000	Peregrine falcon (historic habitat)	E, ST, FE
Pilot Creek Valley	91,000	Peregrine falcon (<u>potential</u> habitat)	E, ST, FE
Blue Lake	70,000	Peregrine falcon (historic habitat)	E, ST, FE

1. Goshute Mountains
2. Pilot Peak Range
3. Badlands Wilderness Study Area Unit #184
4. North Fork River northeast of Elko
5. Blue Lake area south of Wendover
6. North Pilot Creek Valley east of Montello

A habitat management plan (HMP) is designed to manage and protect the total, general wildlife resources for given area; an ACEC is more site/species specific. If an HMP is developed for these six special wildlife habitat use areas, the specific areas will also be included. In any case, these areas must be protected and managed to preserve both present and potential wildlife habitat of high value.

Goshute Mountains

This mountain range is extremely important habitat for a variety of wildlife, including bald eagles, migrating birds of prey, and bighorn sheep.

Bald eagles, a Federal and state designated endangered species, winter in northeast Nevada between November and April. A possible limiting factor for their winter survival may be suitable and adequate roosting sites. A single roost site was identified on the southwest side of the Goshute during a 1980-81 study. This was the first identification of a roost site in the resource area.

The entire Goshute Range contains several potential roost sites, but additional study is needed for positive identification. The Nevada Department of Wildlife (NDOW) is closely monitoring the efforts of BLM to identify and manage roost site habitat.

The fact that bald eagles tolerate little disturbance at roost sites is well documented. Therefore, to understand the total ecology of wintering bald eagles, including their habitat requirements, additional roost sites must be identified, monitored, and protected.

The Goshute Range is a major flyway for migrating birds of prey (hawks, eagles, falcons, etc.) during the fall. Several thousand birds are observed and recorded between late August and late October. Unofficially, a U.S. Fish and Wildlife (USFWS) biologist has been conducting an annual survey of this migration phenomenon for the past three years; he states that "the most productive ridge site yet discovered in the West is in the Goshute Mountains." A major effort to trap and band these birds was added to the 1980 and 1981 surveys. These surveys are monitored by NDOW; the Elko, Nevada and Salt Lake City, Utah, BLM Districts; and the Audubon Society, Salt Lake Chapter.

The Goshutes are a historic bighorn sheep range. Several studies have been conducted to evaluate the feasibility of reintroducing bighorn sheep, which are a state designated sensitive species, into this area. Currently, NDOW has

no plans to reintroduce sheep into the Goshute due to a scarcity of water; a reintroduction priority rating of 16 (16 potential sites statewide, 1=highest, 16=lowest) and an estimated potential carrying capacity of 203 sheep was assigned to the Goshute. Water developments and vegetation manipulation projects could support a positive change in these plans.

The Goshutes also contain two wilderness study areas: the Blue Bell Unit #017 and the Goshute Unit #033. The aforementioned wildlife habitat occurs within both of these units.

Pilot Peak Range

This range overlaps between the Contact and Currie planning units of the Elko District and the Box Elder Planning Unit of the Salt Lake City BLM District. It is unique habitat because it currently supports the only population of elk in the entire Elko District. Although the current population estimate is unavailable from either NDOW or the Utah Division of Wildlife Resources (DWR), the herd appears to be increasing slowly and DWR plans to supplement the population in the future.

The Salt Lake District was contacted and informed about the possibility of this area in Nevada being designated as an ACEC. It appears they support our effort to identify and protect this unique and valuable habitat, but an official statement concerning the support of an ACEC in Utah to supplement our intention in Nevada is currently unavailable.

NDOW rates this elk habitat in poor condition at the lower elevation and in fair to good condition at the higher elevations. Additional studies are needed to fully assess the habitat of this area for future management considerations.

This area is historic bighorn sheep habitat. NDOW has assigned a reintroduction priority rating of 3 and estimates a potential carrying capacity of approximately 141 sheep for Pilot Peak. There are no current plans to reintroduce sheep.

Bad Lands

The Bad Lands are historic bighorn sheep habitat. A BLM study conducted in the summer of 1981 indicated no limiting factors to prevent reintroduction. An NDOW report has assigned a reintroduction priority rating of 4 and estimates a potential carrying capacity of approximately 86 sheep in the Bad Lands. Although this area is relatively small compared to the Goshutes or Pilot Peak, it is no less significant for habitat protection. There are no current plans to reintroduce sheep.

North Fork River

This area northeast of Elko is historic habitat for the peregrine falcon, a state and Federal designated endangered species. Nesting peregrines were last observed at this location of 1949. The area also provides a suitable hunting area for peregrines, with a diverse avian population which peregrines utilize for prey.

A study was conducted by BLM in 1981 to assess the current status of the total peregrine area; no peregrines were observed and no eyrie (nest) sites were located. NDOW and the USFWS American Peregrine Falcon Recovery Team will be monitoring the results of the study and future habitat management plans for peregrine habitat. This site has favorable characteristics for reintroducing peregrine falcons.

Blue Lake Area

This area south of Wendover is historic peregrine falcon habitat. Nesting peregrines were last observed at this location in 1959-60. A 1981 BLM study stated that the historic eyrie site was located and that the hunting area was still available and in generally good condition. No peregrines were observed, however. This site has favorable characteristics for reintroducing the peregrine falcon.

North Pilot Creek Valley

This area east of Montello is not historic peregrine falcon habitat. Its physical characteristics have been reviewed by both BLM and Utah DWR and found to have potential for a possible introduction.

This proposed site is actually in Utah, with the majority of the hunting territory in Nevada. A reconnaissance of the area in 1981 revealed a variety of old and new raptor nest sites.

The Salt Lake BLM District was contacted about this site and the results are discussed in the Pilot Peak ACEC section.

Aquatic Wildlife and Riparian Habitat

This section outlines and discusses methods available for managing stream and riparian habitat to improve them to, or maintain them in, at least a good condition class. Implementation of these opportunities will be discussed in a later section.

Opportunities for All Stream and Riparian Areas

The first opportunity is to closely scrutinize all activities within stream and riparian areas and their watersheds to preclude unnecessary degradation. The existing situation in both the wildlife and vegetation sections discussed the importance of these areas and their watersheds. The stream and riparian areas and important watersheds are all delineated on the opportunities overlay and listed in table 4-8. Privately owned stream segments are also delineated on the overlays because BLM management in their watersheds or on upstream segments can have a substantial influence on their habitat condition.

TABLE 4-8
MANAGEMENT OPPORTUNITIES ON IMPORTANT FISHERIES STREAM AND RIPARIAN HABITAT

Water Name	Location	Priority Rehabilitation Needs			Possible Land Aquisition			Priority category
		Miles of stream	Acres Riparian	Priority category	Sections of land	Miles of stream	Acres riparian	
CONTACT PLANNING UNIT								
Bear Cr.	T47N R62E							
Bishop Cr.	T39N R62E							
Bull Camp Cr.	T42N R53E							
Camp Cr.	T44N R61E							
Canyon Cr.	T45N R61E	6.0	57.5	H	3/4	1.8	17.2	H
Chimney Cr.	T43N R59E	3.0	16.1	H	1/16	0.3	1.6	H
Conner Cr.	T40N R59E	1.5	45.1	H	3/16	0.5	15.0	H
Cottonwood Cr. (O'Neil)	T44N R61E	10.3	480.1	H				
Cottonwood Cr. (Jackpot)	T47N R64E	5.0	31.3	M	1/16	0.1	0.6	M
Currant Cr.	T42N R60E							
"Cutt" Cr.	T43N R58E				1 1/16	4.8	43.1	H
Deer Cr. E.	T43N R61E				3/16	0.5	11.6	H
Deer Cr. M.	T43N R61E	1.0	13.7	H	3/4	2.3	31.6	M
Deer Cr. W.	T43N R61E				5/16	1.2	8.8	H
Donner Cr.	T37N R70E				1	0.5	7.6	H
Draw Cr.	T43N R59E	2.2	18.3	H				
Dry Cr.	T42N R62E	1.2	7.9	M	1/8	0.2	1.3	L
Goose Cr.	T47N R70E	1.5	12.0	H	1 3/16	3.0	24.0	H
Hanks Cr.	T41N R60E	11.0	170.3	H	2 3/8	7.0	108.4	H
Hot Cr.	T43N R60E							
Jakes Cr.	T43N R62E	5.8	37.7	H	5/16 3/16	1.4 & 0.2	9.1 & 1.3	H & L
Johnson Cr.	T36N R63E							
Little Goose Cr.	T46N R68E				1	2.0	4.2	L
Marys River	T42N R60E	5.3	196.7	H	1 5/8	5.0	185.5	H
Piney Cr.	T47N R68E	0.7	3.7	M	5/8	2.3	12.0	H

Pole Cr.	T45N R61E	5.6	115.7	M					
Pole Cr.	T40N R61E								
Salmon Falls main & S fk	T47N R64E	10.5	1069.6	H	11/16	1.6	163.0	H	
Salmon Falls N fk	T45N R62E	1.8	19.2	L					
Shack Cr.	T47N R62E	2.5	42.1	M	1/4	0.6	10.1	M	
Shell Cr.	T46N R62E	3.5	17.5	L	1/4	0.6	3.0	L	
Shoshone Cr.	T47N R64E	1.7	12.4	M	1/4	0.5	3.6	M	
Sun Cr.	T44N R61E								
T Cr.	T42N R60E	1.5	49.6	H					
Tabor Cr.	T40N R60E	1.7	8.5	H	1 5/8	5.0	25.0	H	
Trout Cr.	T39N R62E								
Trout Cr.	T45N R65E								
Trout Cr.	T47N R69E	2.2	13.0	H	13/16	2.3	13.6	M	
Wildcat Cr.	T43N R60E				3/4	2.4	28.2	H	
Willow Cr.	T46N R62E								
Wilson/Lime Cr.	T46N R62E								
CURRIE PLANNING UNIT									
McDermitt Cr.	T26N R63E				1 7/16	4.5	52.8	H	
Odgers Cr.	T27N R62E	10.0	79.4	H	3/16	0.2	1.6	H	
Phalen Cr.	T29N R63E				1/8	0.3	4.3	H	
Taylor Cr.	T27N R62E				1/16	0.2	1.3	L	
TOTALS									
High		73.5	2267.6	15-H	13 1/2	42.3	718.8	17.5-H	
Medium		16.7	213.1	6-M	2 1/8	5.8	59.5	5-M	
Low		5.3	36.7	2-L	1 11/16	3.2	11.1	4.5-L	
Total		95.5	2517.4	23	17 3/8	51.3	789.4	27	

As discussed under the existing situation, grazing, mining, road construction, water diversions, channelizations, and other land disturbances can all have adverse impacts on stream and riparian areas and their watersheds. Therefore, existing levels of use and any new proposals for these activities within the areas delineated should be carefully evaluated in terms of possible adverse impacts, reasonable alternatives, and mitigating measures.

A second management opportunity involves alternative grazing practices. As discussed under existing situation, livestock grazing is the primary agent producing and maintaining deteriorated stream and riparian habitat within the Wells RA. Although little research has been completed, some grazing practices are believed to have potential for reducing adverse impacts on stream and riparian habitats and their watersheds. Among these practices are the development of water sources away from the stream, variations in grazing systems, alternative seasons and intensities of grazing, stipulations for proper use factors on watershed vegetation, location of pasture fences to better distribute grazing, salting for livestock away from streams, and herding livestock away from streams. Fisheries biologists, wildlife biologists, range conservationists, and other specialists should work closely together and consult with users in formulating the best grazing practices to meet the unique management needs of each area.

A third opportunity involves the use of an area of critical environmental concern (ACEC) designation. For particularly unique and important stream and riparian areas, this option can provide protection of the resource while allowing important nonconflicting uses to continue.

Opportunities for Deteriorated Stream and Riparian Habitat

In addition to the management opportunities considered above, special methods are usually necessary for rehabilitation of deteriorated (rated poor or fair) stream and riparian habitat. The more important deteriorated habitat areas on public (BLM) lands are delineated on the opportunities overlay and listed in table 4-8. These areas were chosen through a consensus of the two Elko District fishery biologists and the Region II fishery biologist from the Nevada Department of Wildlife (NDOW). A consensus was also reached for each designated area on a rating of high (H), medium (M), or low (L) priority. The priority was based primarily upon the area's importance to fishing or on the presence of T&E listed or sensitive fish species.

A total of 95.5 miles of stream and riparian habitat were given a priority rating for rehabilitation and 73.5 miles were rated high priority. However, even if all priority categories were rehabilitated, they would include less than one-half of the public miles and one-fourth of the total miles which rated poor or fair in overall stream habitat condition.

An initial period of complete rest from grazing is essential for recovery of deteriorated stream and riparian habitat. This allows time for new woody

vegetation to reach a height which will withstand grazing and for streambanks to rebuild. The amount of time necessary will vary substantially from stream to stream, but it normally is at least several years.

The stream and riparian habitat in Nevada generally consists of small green threads strung through millions of acres of grazing land. Livestock, and particularly cattle, normally congregate along these threads and deplete most of the palatable vegetation before moving to graze upland areas.

It is not very practical, in most cases, to rest an entire pasture from grazing for extended periods to benefit a small acreage of stream and riparian habitat. The only remaining alternative is to fence off the stream area and manage it separately from the rest of the pasture. Water gaps or piping of water outside the exclosures for livestock is necessary where other water is unavailable.

Protection and rehabilitation by means of exclosures can benefit livestock as well as fish and wildlife. In most cases, stream and riparian areas can probably be grazed periodically following rehabilitation, with the re-established and rejuvenated vegetation providing increased forage. The rebuilt streambanks increase water storage which, combined with more shade, can increase the amount and distance of perennial stream flow. The resulting rise in water tables may also help restore or preserve meadows.

Another management opportunity for improving deteriorated stream and riparian habitat involves privately owned segments. Just as BLM management on public stream segments can influence privately owned segments, the reverse is equally true and important. The existing situation discussion pointed out that rehabilitation of public stream habitat may not be fully possible without improvements on private stream habitat. The two Elko district fishery biologists and the NDOW Region II fishery biologist reached a consensus on which privately owned stream segments were highly important to fisheries management. These areas are delineated on the opportunities overlay and listed in table 4-8.

A consensus was also reached for each designated area on a rating of high (H), medium (M), or low (L) priority. The priority was based primarily upon the area's importance to fishing or on the presence of T&E listed or sensitive fish species. The total in all priority categories is only about 22 percent of private miles inventoried and totals less than 18 sections of land.

The most desirable opportunity for these private segments is to acquire and manage them like other BLM stream and riparian habitat. But if an easement, memorandum of understanding, or other arrangement for habitat protection could be set up, it would be preferable to the existing situation.

A stream is a system. Only through management of the entire stream and its watershed can its full potential be restored.

The other management opportunities for rehabilitation of deteriorated stream and riparian habitat involve artificial means for hastening improvements. The primary methods in this category are instream improvements and revegetation.

Instream improvements most appropriate to Nevada streams are primarily pooling structures such as logdams. Most deteriorated streams have very few quality pools. Natural rehabilitation of stream and riparian habitat will eventually, as a rule, produce some quality pools. Construction of logdams in small streams and placement of large boulders in large streams, however, can provide badly needed living space for fish until natural pools are formed. The construction of log dams has successfully improved the status of fish populations in two Elko District streams, Deer and Frazier creeks.

Other types of stream structures can be beneficial in certain situations. All structures should be carefully designed to fit the unique needs of each stream.

Revegetation of stream and riparian areas may be necessary where deterioration has eliminated most of the natural vegetation. Hand planting of native grasses, shrubs, and trees can hasten rehabilitation and may re-establish plant species which have been eliminated from the area. Results of revegetation studies on Deer, Tabor, and Chimney creeks will provide additional information about this technique.

Implementation of Management Opportunities

This section discusses alternatives for implementation of the management opportunities discussed in the first section. Consideration is given to goals/objectives, demand, economic viability, practicality, and a proposed ACEC.

The existing situation spelled out laws, executive orders, and manuals which mandate special management attention to wetland and riparian areas. State Director guidance and the RMP planning criteria further emphasize the importance of preserving these areas. Earlier sections also established that 73 percent of riparian areas on streams and 87 percent of stream habitat overall were in unsatisfactory condition. Not applying the management opportunities outlined in the first section would be to ignore all the mandates.

One planning criterion under the wetland riparian and stream habitat issue specifies that these areas will be managed to improve them to, or maintain them in, at least a good condition class. In addition, a planning criterion under real estate management provides for acquisition of certain private lands to meet critical resource needs. Priorities for accomplishing the mandates for rehabilitation will be discussed in a later paragraph on practical solutions.

The demand section under existing situation concluded that even existing demand for quality stream fishing is probably not being met. Furthermore, the anticipated doubling in less than 10 years of the human population residing within the resource area will require substantial increases in fishing just to meet demand to the same relative degree. It should be noted that rehabilitation of wetland and riparian areas also increases terrestrial wildlife, which can help meet demands for hunting. Improvements can help meet the demands for aesthetic enjoyment as discussed under quality of life in the vegetation issue. Even if demand were not a factor, BLM still has the mandates for action as outlined above.

Economic viability is not directly applicable in management of wetland, riparian, and stream habitat. The costs of alternative options for management are important considerations and they will help determine the rate at which options will be implemented. However, as outlined earlier, management requirements, including planning criteria, mandate that these areas will be managed properly. Furthermore, even if economic viability were required, it logically should be applied to the use that is causing the problem. Is it economically feasible, for example, to graze an area with livestock if costs are included which are necessary to maintain reasonable amounts of other uses mandated by FLPMA, ESA, etc.?

Given practical limitations, such as funding levels and certain political constraints, the planning criteria stipulating that wetland and riparian areas be managed to improve them to, or maintain them in, at least a good condition class probably cannot be fully implemented within the first 10 years.

However rehabilitation must be implemented as quickly as reasonably possible in order to comply with the mandates discussed earlier. Even if all priority rehabilitation were completed, over one-half of the public miles and three-fourths of the total miles which rated poor or fair in overall habitat condition would remain in unsatisfactory condition.

The prioritizing on the opportunity overlay and in table 4-8 of the most important areas for rehabilitation provides good guidance in selecting the sequence of areas to improve. The same prioritizing of privately owned areas to consider for acquisition provides guidance for implementing this option as the opportunity arises. The actual implementation of specific improvements for each individual area will in most cases be determined through activity planning and the CRMP process.

Area of Critical Environmental Concern (ACEC). One area which seems to meet the ACEC criteria of relevance and importance is Odgers Creek in Butte Valley. Odgers Creek is inhabited by the largest known population of the sensitive fish species relict (Steptoe) dace (Relictus solitarius).

Relict dace is the only native fish species in the 5,669 square miles of Butte, Ruby, and Goshute valleys in Elko County and Steptoe Valley in White Pine County. A publication by Hubbs, Miller, and Hubbs identified a total of 29 historical sites, plus 5 introduced sites, inhabited by this species. Of these 34 original sites, 11 are within the Wells RA. The 1980 BLM aquatic inventory documented that dace had been eliminated from 5 of the 11 sites, while access was denied to 2 others. One new site, Franklin Lake, was discovered to contain dace.

Detailed data are unavailable for the historical and introduced sites outside of the Wells RA, but a 1978 report by Thom Hardy of UNLV concluded that dramatic losses of both numbers and localities have occurred due to introduced exotic fish species and habitat alterations. The Endangered Species Committee of the American Fisheries Society designated the relict dace as a Species of Special Concern in 1979.

Prior to 1981 the state of Nevada classified this dace as rare, but due to the discovery of a couple of new inhabited sites, including Franklin Lake, the status was downgraded to sensitive. However, Pat Coffin, NDOW Region II fishery biologist, now believes the action may have been premature. The 1981 drought stressed and probably reduced many of the remaining populations, which increases the possibility of their elimination.

This area meets the criterion of relevance because it is one of the kinds of resources included in the Act's definition. It also appears to meet the criterion of importance as illustrated in the background information above. The fact that populations of dace have been eliminated from so many sites illustrates how fragile the existence of individual populations is.

The fact that the relict dace is designated as sensitive on the joint BLM-NDOW list of 1978 and as a Species of Special concern by the American Fisheries Society indicates that it is of more than local significance.

Odgers Creek is particularly important compared to other remaining locations because it is one of the few sites on BLM administered lands. Only one other site within the resource area is on BLM administered land and it is a spring pond. Odgers Creek also contains one of the few stream populations of relict dace. Most streams cannot support these dace because water temperatures fluctuate too much. Odgers Creek, however, is fed by an abundance of springs throughout much of its length, which moderates water temperatures.

The reaches of Odgers Creek inhabited by dace total about 10 miles, and only one group of source springs is privately owned. The 1980 BLM inventory of Odgers Creek showed it to be in very poor habitat condition due to extremely heavy grazing on the stream channel and its spring sources. Although many of the habitat requirements for relict dace are not known, quality pools, aquatic vegetation, and moderated water temperatures are important.

Trampling and grazing on the stream channel by cattle and wild horses have widened the stream and eliminated almost all bank vegetation. As a result, pool quality has been reduced and the range between maximum and minimum water temperature extremes has been expanded. The effects of trampling on the springs and streambanks have also probably reduced the amount of stream flow significantly.

The importance of Odgers Creek is increased by its value to sage grouse. Large numbers of grouse are known to congregate around the stream during the brooding season. Restoration of the meadow habitat around the springs and along the stream would benefit sage grouse populations substantially.

WILD HORSES OPPORTUNITY ANALYSIS

Populations and Areas of Use

Herd use areas that provide opportunities to maintain wild horses are shown on the opportunities overlay.

The north end of the Spruce-Pequop and Goshute herd use areas and all of the Toano herd use area are not shown. All are in the checkerboard land pattern. Since a private landowner may require BLM to remove horses from private land at any time, there is little opportunity to maintain viable herd use areas in intermingled land pattern areas.

The remaining herd use areas and most recent counts are as follows:

<u>Herd Use Area</u>	<u>Number of Horses</u>	<u>Date of Count or Estimate</u>
Maverick-Medicine	244	Count/March 1981
Cherry Creek	64	Count/March 1981
Antelope Valley	164	Count/March 1981
Goshutes	120*	Count/March 1981
Spruce-Pequop	50*	Estimate/1981

*Counts include checkerboard portions of areas. A separate count for noncheckerboard areas only is not available.

The above herd use areas are solid, blocked Federal land areas. They meet the habitat requirement for winter and summer range and have few fences that would hinder wild horse movements.

By law, management of wild horses must be kept to a minimum so that the animals can retain their wild, free-roaming characteristics. Minimum management in this case would mean no additional fencing and some additional water development. It would preclude deliberate population manipulations for color or conformation characteristics.

Social and Political Demands

As stated in the existing situation, the wild horse program is controversial. Ranching and wildlife spokesmen, as well as state and local government officials, keep pushing for fewer horses and herd use areas. On the wider statewide and national scene, wild horse interest groups are pressing for as many horses and herd use areas as possible.

Resource Capability

The herd use areas shown on the overlay all have suitable wild horse habitat. They have a minimal amount of fencing and contain both winter and summer

range. Some additional water development may be necessary to allow better use of the herd areas.

Competition with livestock and wildlife for existing forage needs further study. A fecal analysis study conducted in 1980 indicated little diet overlap between wild horses and antelope and deer, but a great deal of overlap between wild horses and both cattle and sheep.

The remaining herd use areas and most recent counts are as follows:

Herd Use Area	Number of Horses	Date of Count or Estimate
Neversick-Wednesday	147	Count/March 1981
Greasy Creek	54	Count/March 1981
Antelope Valley	154	Count/March 1981
Lebanon	1204	Count/March 1981
Antelope-Pedro	204	Estimate/1981

*Counts include checkboard portions of areas. A separate count for noncheckboard areas only is not available.

The above herd use areas are wild, unstocked federal land areas. They meet the habitat requirements for winter and summer range and have few fences that would hinder wild horse movement.

By law, management of wild horses must be kept to a minimum so that the animals can retain their wild, free-ranging characteristics. Minimum management in this case would mean no additional fencing and top additional water development. It would require deliberate population manipulation for color or conformation characteristics.

Local and Political Demands

As stated in the existing situation, the wild horse program is controversial. Ranching and wildlife agencies, as well as state and local government officials, keep pushing for fewer horses and herd use areas. On the other extreme, and national groups, wild horse interest groups are pushing for as many horses and herd use areas as possible.

Resource Availability

The herd use areas shown on the map are all have suitable wild horse habitat. They have a minimal amount of fencing and contain both winter and summer

WOODLAND PRODUCTS OPPORTUNITY ANALYSIS

Several cutting practices constitute viable alternatives in harvesting fuelwood. These include clearcutting, thinning, and selective cutting.

In areas stocked with mature and overmature trees that have a high regeneration potential, the clearcut method may be justifiable. However, thinning and selective cutting practices are beneficial because they provide wood products to the user while VRM requirements are still met. Thinning and selective cutting open up stands by harvesting mature and overmature trees. This creates the opportunity for more forage to become available for livestock and for wildlife habitat and tree regeneration to be enhanced. In pinyon stands, the potential for more Christmas trees is created.

Selective cutting practices would be particularly applicable in areas being harvested for fuelwood. Trees to be harvested would be marked with a spray gun during the cruising process.

Deadwood is plentiful throughout the forested lands of the resource area. With factors such as insect and disease infestations and wildfire constantly creating a new supply, a shortage of deadwood is unlikely in the future. Given the good access which exists to most of the woodland areas, collection of deadwood is made easy.

The opportunity exists to manage areas supporting the pinyon pine Christmas tree on a rotation basis to help assure a sustained yield of this important resource. Commercial sale areas specifying definite boundaries and designating the number of trees to be harvested should be utilized in this process.

Areas being managed on a rotation basis are the Maverick Range, Medicine Range, Cherry Creek Range, Spruce Mountain, Pequop Mountains, Dolly Varden Mountains, and Goshute Mountains. These areas include approximately 500,000 acres, with 3,500 to 5,000 trees being harvested annually on a sustained level of use basis. When the forest inventory is completed, more accurate values may be available. With this type of program being implemented, the Wells RA will continue to support the much sought after pinyon pine.

The quality of Christmas trees in natural stands could also be improved over time by treatments such as thinning and shearing. Thinning heavy stands and opening older stands would encourage growth of trees of acceptable form and density. Shearing, commonly practiced in plantations, would provide a means of increasing density and developing a uniform, conical shape.

Leaving a single live limb on the stump of cut Christmas trees shortens the time required for regeneration. If a single live limb is left on a stump, that limb has the potential to grow upwards and form a new tree.

Several opportunities exist in managing post and pole cutting. These include meeting the demand for posts and poles in the resource area, keeping aesthetic values high in woodland areas, and utilizing the wood fiber that is normally wasted in post and pole harvesting practices.

To accomplish these objectives, post and pole cutters could be guided into the wood cutting areas whenever possible. Waste could be utilized by firewood collectors and, at the same time, visual contrast problems could be confined, thus minimizing potential problems.

Since pinyon nuts constitute a regionally valuable crop, the opportunity exists to manage the pinyon stands for nuts. Management techniques include treatments such as fertilizing, cultivating, and irrigating. Protection from excessive disease and insect damage could also influence crop yields.

Some trees and stands scattered throughout the woodland consistently bear larger crops of nuts than others. Trees with the greatest crown size and density will bear the most cones. Favoring these better crop trees when selectively cutting the stands would help maintain nut production.

The unique species in the resource area--white fir, limber pine, bristlecone pine, whitebark pine, and Engelmann spruce--could be managed as areas of critical environmental concern (ACECs). No disturbance would be allowed in these areas unless the activity would protect or benefit these unique species. Problems BLM would want to manage against include disease and insect outbreaks and fire. In areas where practices such as mining may occur, planning and environmental analysis would be undertaken to minimize impacts on the species involved.

Specific areas being proposed for ACEC designation are depicted on a woodland products opportunity analysis overlay.

WILDERNESS OPPORTUNITY ANALYSIS

The opportunity exists to recommend all, some, or none of the 175,625 wilderness study area acres in the planning area as suitable for wilderness designation. The Preliminary Final Wilderness Study Policy dated July 20, 1981, outlines the range of required alternatives that must be analyzed during the wilderness study (in this case, the RMP). These are the all wilderness, no wilderness, and partial wilderness alternatives.

Two major criteria are outlined in the Preliminary Final Wilderness Study Policy. First, all areas recommended as suitable must meet the mandatory wilderness characteristics of size, naturalness, and outstanding opportunities for solitude and/or primitive recreation. Previous sections of this MSA, as well as the wilderness inventory files themselves, clearly indicate that all four wilderness study areas possess the mandatory wilderness characteristics.

Second, a suitable area must be capable of being effectively managed in the long term to preserve its wilderness character. The phrase "effectively managed" means that an area can be managed to maintain the public benefits which justified its wilderness designation.

By specifically permitting mining and grazing activities in designated wilderness areas, Congress has made it clear these activities are legally considered compatible with wilderness preservation. Determining a portion or all of a WSA as unsuitable based solely on assumptions about the future degradation of wilderness values resulting from mining and grazing activities would contradict the spirit of the Wilderness Act. However, to improve manageability and provide a range of opportunities, we can adjust WSA boundaries to create a more logical management configuration and to eliminate existing--not potential or perceived--resource conflicts.

Table 4-9 shows the opportunities for wilderness designation for several potential RMP alternatives.

TABLE 4-9
OPPORTUNITIES UNDER POTENTIAL RMP ALTERNATIVES
ACRES SUITABLE FOR DESIGNATION

WSA	All Wilderness	Resource Protection	Other	Resource Production	No Action
Bluebell	55,665	50,094	50,094	50,094	-----
Goshute					
Peak	69,770	65,585	65,585	65,585	-----
South					
Pequop	41,090	35,219	-----	-----	-----
Bad Lands	9,100	8,341	8,341	8,341	-----
TOTAL	175,625	159,239	124,020	124,020	-----

The "All Wilderness" alternative would include as suitable all of the WSA acres.

A "Resource Protection" alternative would include as suitable all of the WSA acres except those deleted for management configuration and/or existing resource conflict reasons. From Bluebell WSA, 5,571 acres would be deleted from the northern end to eliminate the management problems associated with a private land border and to better align the configuration of the WSA's northern boundary. The southern end of the Goshute Peak WSA would be reduced by 4,185 acres to provide a more oblong configuration and to eliminate several ways on the eastern side from its borders. The southwestern 5,871 acres of the South Pequop WSA would be eliminated to make the area's configuration more manageable and to take into account the presence of three cherrystemmed roads in the immediate area.

Finally, four areas totaling 759 acres in the Bad Lands WSA would be eliminated. Two of these areas, totaling 74 acres, represent the land between a fence and the eastern WSA boundary road. Another 62-acre parcel is between a telephone line and the southern WSA boundary road. The other 623-acre parcel would be excluded because it contains a seeding and because it forms an unmanageable configuration in the northwestern corner of the WSA.

The "Other" and "Resource Production" alternatives would be identical to each other and to the "Resource Protection" alternative, except for the determination of all of the South Pequop WSA as unsuitable. It would not be suitable because it lacks the quality of wilderness values inherent in the other three areas and because of the large acreage (18,600 acres, or 45 percent of the WSA) leased for oil and gas exploration.

TABLE 4-3
OPPORTUNITIES UNDER VARIOUS WSA ALTERNATIVES
ACRES SUITABLE FOR DESIGNATION

WSA	All Wilderness	Resource Protection	Other	Resource Production
Bluebell	32,663	30,091	30,091	30,091
Goshute	69,770	65,585	65,585	65,585
Pequop	41,380	35,219	35,219	35,219
Bad Lands	9,100	8,341	8,341	8,341
TOTAL	152,913	139,236	139,236	139,236

LIVESTOCK GRAZING
OPPORTUNITY ANALYSIS

MIC Rationale

Allotments have tentatively been placed in the (M) Maintenance, (I) Improvement, or (C) Custodial category, using the professional judgement of the Wells RA range staff and the following criteria:

M--Those allotments where management is satisfactory, range condition is good, and trend is static or upward, and allotments in fair condition where trend is upward. Additional range improvements are not required but may be desirable.

I--Those allotments in which current management is unsatisfactory, trend is static to downward, and the potential for economic return through investment in range improvements is high.

C--Those allotments where the potential for economic return from investment is negligible. Custodial allotments may have any range condition or trend and be under either satisfactory or unsatisfactory management. While they have a relatively low percentage of Federal range, the overriding factor is economic return from investment.

Tabel 4-10 portrays the categorization of allotments for the Wells RA.

TABLE 4-10
CATEGORIZATION OF ALLOTMENTS
Contact Planning Unit

		<u>Categorization Criteria</u> ¹										Category
		A	B	C	D	E	F	G	H	I	J	
3201	Anderson Creek.....	X		X		X		X	X			M
3202	Antelope.....		X	X		X			X			I
3203	Barton.....	X		X		X		X	X			M
3204	Bear Creek.....	X			X		X			X	X	C
3205	Big Bend.....		X		X	X			X			I
3206	Bishop Creek.....	X		X		X		X	X			M
3207	Bishop Flat.....	X		X		X				X	X	C
3208	Black Butte.....	X		X		X		X	X			M
3209	Bluff Creek.....	X		X		X		X	X			M
3210	Buckhorn.....		X	X			X		X			I
3211	Cavanaugh.....	X		X		X		X	X			M
3212	Cedar Hill.....	X		X		X				X		C
3214	Cottonwood.....	X		X		X		X	X			M
3215	Dairy Valley.....		X	X			X		X			I
3216	Deeth.....		X	X		X			X			I
3217	Devils Gate.....		X		X		X		X			I
3218	Gamble Individual.....		X	X		X			X			I
3219	Pilot Valley.....	X			X	X				X		C
3220	Grouse Creek.....		X	X		X			X			I
3221	Gully.....	X		X		X		X	X			M
3222	H.D.....	X		X		X		X				M
3223	Holborn.....	X		X		X		X	X			M
3224	Hot Creek.....	X		X		X		X	X			M
3225	Hubbard Vineyard.....		X		X		X		X			I
3226	Jackpot.....	X		X		X		X	X			M
3227	Little Goose Creek.....		X	X		X			X			I
3228	Metropolis.....	X			X	X		X	X			M
3229	Metropolis Seeding.....		X	X		X			X			I
3230	Morgan Hill.....	X			X	X				X		C
3231	O'Neil.....	X		X		X		X	X			M
3232	Pole Creek.....	X		X		X				X		C
3233	Rabbit Creek.....		X	X		X			X			I
3234	Salmon River.....		X		X		X		X			I
3235	Spratling.....	X		X		X		X	X			M
3236	Stag Mountain.....		X	X		X			X			I
3237	Stormy.....		X	X			X		X			I
3238	Town Creek.....	X		X		X				X	X	C
3239	Trout Creek.....		X		X		X			X	X	C
3240	Wells.....	X		X		X				X		C
3241	Westside.....		X	X		X			X			I
3243	Railroad Field.....	X		X		X			X	X		M
3245	Dalton.....	X		X		X				X	X	C

Currie Planning Unit

		Categorization Criteria ¹										Category
		A	B	C	D	E	F	G	H	I	J	
4301	Antelope Valley.....	X			X	X		X	X			M
4302	Bad Lands.....	X			X	X		X	X			M
4303	Bald Mountain.....		X		X		X		X			I
4304	Bennett Field.....	X		X		X				X	X	C
4305	Big Meadows.....	X		X		X		X	X			M
4306	Big Springs.....		X		X		X		X			I
4307	Boone Spring.....	X			X	X		X	X			M
4308	North Butte Valley..	X		X		X		X	X			M
4309	Chase Spring.....		X		X		X		X			I
4310	Clover Creek.....	X		X		X		X	X			M
4311	Currie.....		X		X		X		X			I
4312	Curtis Spring.....	X		X		X		X	X			M
4314	Ferber Flat.....	X			X	X		X	X			M
4315	Forest.....	X			X		X			X		C
4317	Gordon Creek.....	X			X		X			X	X	C
4318	Harrison Allotment..	X		X		X		X	X			M
4319	Hylton.....	X		X		X		X	X			M
4320	Kelly Field.....	X		X		X				X		C
4321	Lead Hills.....	X		X		X		X	X			M
4322	Leppy Hills.....	X		X		X		X	X			M
4323	Maverick.....		X		X	X			X			I
4324	Mayhew Creek.....	X			X		X			X		C
4325	Moor Summit.....	X		X		X		X	X			M
4327	Utah Nevada #1.....	X		X		X		X	X			M
4328	Odgers.....		X		X		X		X			I
4329	Overland Creek.....	X			X		X			X		C
4330	Pilot.....	X		X		X		X	X			M
4332	Ruby #1.....	X		X		X		X	X			M
4333	Ruby #2.....	X		X		X		X	X			M
4334	Ruby #3.....	X		X		X		X	X			M
4335	Ruby #4.....	X		X		X		X	X			M
4336	Ruby #5.....	X		X		X		X	X			M
4337	Ruby #6.....	X		X		X		X	X			M
4338	Ruby #7.....	X		X		X		X	X			M
4339	Ruby #8.....		X		X	X			X			I
4340	Ruby #9.....		X	X		X			X			I
4342	Smiley.....	X		X		X		X	X			M
4343	Snow Water Lake.....	X		X		X		X	X			M
4345	South Ruby.....	X			X		X			X		C
4346	Spruce.....		X	X			X		X			I
4347	Sugar Loaf.....	X		X		X		X	X			M
4348	Tobar.....	X			X		X			X		C
4349	Warm Creek.....		X	X			X		X			I
4352	W. White Horse.....	X		X		X		X	X			M
4353	White Horse.....	X		X		X		X	X			M
4354	Wood Hills.....	X			X		X			X		C

<u>Categorization Criteria¹</u>											Category
A	B	C	D	E	F	G	H	I	J		

Administered by Ely

W. Cherry Creek.....X.....X.....X..X.....I

¹Categorization criteria are as follows:

- A. Management is satisfactory.
- B. Management is unsatisfactory.
- C. Range condition is fair to good.
- D. Range condition is poor to fair.
- E. Trend is static to upward.
- F. Trend is static to downward.
- G. Range improvements not required but may be desirable.
- H. Potential for economic return through investment is high.
- I. Potential for economic return through investment is negligible.
- J. Percent Federal range is low.

Range Improvement Opportunities

As discussed in the existing situation, most livestock use occurs through the critical growth period of May and June for perennial grasses. Ideally, no grazing would be allowed during this period. However, as is also indicated in the existing situation, this is the period that vegetation is most nutritious and most needed by livestock.

The following general opportunities exist to provide for both the physiological requirements of the vegetation and forage needs for livestock:

1. Preclude grazing for any two consecutive years during May and June on any portion of a category I allotment until a grazing management system is implemented that provides for the physiological requirements of the vegetation.
2. Preclude grazing on winterfat (whitesage)/Nutall saltbrush (sweetsage) areas during the active growth period, which is approximately April 1 to October 31.
3. Establish a grazing management system to meet the physiological requirements of the vegetation on all category I allotments.
4. Combine allotments, primarily the smaller allotments in the Metropolis area, to provide for periodic rest where development through range improvements is not economically feasible.
5. Develop water on allotments with riparian areas that receive excessive grazing use to help alleviate the problem of livestock concentration.
6. Fence riparian areas that cannot be protected through grazing management or water development to promote rapid recovery of vegetation and increased forage after 3 to 5 years of rest.
7. Develop seeding projects to increase forage production and grazing use (increased livestock numbers or longer periods of use).
8. Develop seeding projects as a management tool to provide spring feed and allow rest for native range during the critical growth period, with no immediate increase in total AUM use.
9. Develop water to better utilize existing forage potential through improved livestock distribution and to increase grazing use (AUMs).
10. Develop water to utilize existing forage potential and relieve grazing pressure on concentration areas (other than riparian), with no immediate increase in grazing use.

11. In combination with any of the above, adjust livestock numbers to proper stocking levels after 3 to 5 years of rangeland monitoring studies.

12. Spray or burn dense stands of sagebrush on native range to increase forage production and create ecotones for wildlife.

13. Fence allotment boundaries as needed.

14. Construct pasture fences as needed to implement grazing management.

It is not practical to identify specific opportunities for individual allotments at the RMP level. This is more appropriately dealt with at the activity planning stage (allotment management plans, habitat management plans, etc.).

Coordination and Multiple Use Considerations

In order to attain the greatest multiple-use benefits from range improvements, involvement by livestock operators and the Nevada Department of Wildlife will be required during the prework phase of all range improvement planning. In areas adjoining Forest Service administered lands, the Forest Service will be requested to provide input on proposed range improvements. The CRMP Committee will also be requested to provide input from various interest groups.

VEGETATION
OPPORTUNITY ANALYSIS

Opportunities for riparian vegetation are discussed in the Wildlife Habitat section.

No opportunities have been identified for threatened and endangered (T&E) plants. It is felt the current system of performing clearances prior to initiating any ground or vegetation disturbing activities represents the optimum level of management, given current budgetary restraints. Furthermore, calling attention to areas having T&E species through ACEC designation or other special management practices could further hurt efforts to protect these plants by calling public attention to their location.

MINERALS
OPPORTUNITY ANALYSIS

Increased exploration and development of new mines can be anticipated to occur in areas of high and good mineral potential (see overlays). The mining industry should be encouraged to work in these areas. This can be accomplished by keeping these lands open to mineral exploration; opening new lands, as is being done in the current withdrawal review program; and processing notices, plans, rights-of-way, etc., in a timely manner.

Mining impacts will not be limited to the areas shown as high or good mineral potential on the overlays. Areas of low or unknown potential may have significant resources. However, impacts in these areas are expected to be relatively minor (development anticipated to be less common and more dispersed).

Available information is not sufficient to allow delineation of areas of high, good, or low oil and gas potential. However, it can generally be assumed that oil and gas discoveries are most likely to occur in valleys. Opportunities to encourage oil and gas developments are chiefly related to the timely processing of permits and leases.

An opportunity exists to reduce the damage done to surface resources by oil and gas exploration operations. This could be accomplished through the development of more comprehensive district guidelines for mitigation, e.g., of impacts resulting from seismic exploration.

Geothermal development can be encouraged through an expanded offering of areas for leasing. New regulations, which allow more acreage per lease, might result in increased geothermal development if a new series of geothermal leases were offered. Although much of the lease sale preparation would be done by the Nevada BLM State Office and USGS, input from the district level on resources potential and environmental concerns would be important. Most geothermal developments should occur in areas shown as "prospectively valuable" for geothermal resources on overlays.

Development of various energy and mineral resources in the Wells RA would, on a broad scale, help reduce foreign imports of energy and mineral commodities. At a more local level, development of new mineral resources would create new jobs and result in additional purchases of local goods and services.

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